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That exports of coal are now actually being made in considerable quantities is shown by a dispatch just received from Newport News, Virginia, which notes the sailing in one day of three steamers loaded, one with 4,000 tons for Marseilles, France; one with 3,000 tons for Alexandria, Egypt; and one with 3,000 tons to Gibraltar for orders. This coal was from Kanawha or New River mines in West Virginia, brought down over the Chesapeake & Ohio Railroad. Many steamers go to Newport News and Norfolk for bunker coal, but few for full cargoes, such as those noted.

A notable landmark in American mining history is the celebration at Ishpeming, Michigan, on July 14th, of the fiftieth anniversary of the organization of the Cleveland Iron Mining Company. This company was the first in the Lake Superior Region, and is represented by the present Cleveland-Cliffs Iron Company. The exercises were held on the site of the original mine and included a reception and historical address. A very interesting comparison might be made between the little shaft from which a few hundred tons of ore were hauled by wagon to the lake, and the present great plant shipping thousands of tons daily The growth of the Lake Superior country has been almost that of the iron industry of the United States, and has formed an exceedingly important part of it.

There seems to be little doubt that some time will elapse before the Witwatersrand Mines can be reopened and work resumed. The Transvaal is not yet pacified by any means, and while the resistance to the British forces seems to be gradually decreasing in importance, a desultory warfare may be carried on for some time to come. While Johannesburg is occupied by a large military force the return of any great number of civilians to the mines can hardly be permitted. There is little doubt that the resumption of work, when it does come, will be followed by a large demand for new machinery and material. The machinery at the mines has been more or less damaged by neglect and careless handling, while the mills are bare of supplies. This is a further reason for postponement in resuming operations, since the railroad line to Johannesburg is overburdened by the work of carrying supplies for the army. We hardly expect to see anything approaching a general starting up of the mines for several months to come.

The plant of the New England Gas and Coke Company, near Boston, is working quietly but steadily, and, we understand, very successfully. Apart from the gas which it now furnishes to several of the companies in and near Boston, this company is finding markets for its coke in several different directions. On the Boston & Maine Railroad there are now nearly 200 locomotives burning coke from the ovens at Revere, and other railroads running out of Boston are trying this fuel. A number of manufacturing plants are also using it, and find it better for their purposes than the bituminous coal which they have heretofore burned. The utilization of the by-products from the coal promises to be a success economically and to add considerably to the company's revenue. The arrangements for supplying fuel gas are not yet completed, but will add largely to the company's business when they are in full operation. Upon the whole the Boston experiment, which is being worked out in a practical and business-like way, promises very well indeed, and it is quite probable that the plant will serve as a model for others to be established in the neighborhood of other large cities. Probably it can be improved in some details, but it is certainly furnishing an example to coal operators which they will do well to study carefully. We have little doubt that the fuel and power supply of our large cities and towns in the future will be in the form of gas, and the sooner coal operators realize this and act upon it the better it will be for them.

The accounts from the Nome District in Alaska continue to be unsatisfactory. The district is so overcrowded that the military commander, who is now in control, has forbidden newcomers to land at Nome City, and has ordered the formation of a new settlement some miles distant. The facilities for handling freight do not exist as yet, and we are informed that great quantities of supplies and machinery are piled upon the beach, and it is almost impossible for the owners to get their property. The great trouble in the district at present is the uncertainty of titles. Almost every accessible claim has been located two or three times over, and new arrivals who try to buy one are confronted by several alleged owners. Apparently there is endless litigation in prospect.

An estimate from persons competent to judge is that Nome will yield from $4,500,000 to $5,000,000 this year. Prospectors are scattered all along the sea shore for 50 miles, and are said to be meeting with varying success. The great rush is naturally for the beach placers, as they can be reached and tested without the labor required to explore the tundra back of the coast. In another year, when the present rush is

over and the excitement has subsided, some serious mining may be done.

At this end it looks as if the rush was falling off. The best indication of this is that the transportation companies are reducing fares and offering other inducements to passengers.

We publish on another page the latest letters which have reached us from our correspondent in Johannesburg. Part of what he sends can hardly be called news at the present time, his letters having been much delayed in transit, but we give his statements in a somewhat condensed form for the purpose of completing the record of the Transvaal mines during the war. Although no statement is definitely made, it will be seen that the Pretoria Government had evidently begun to anticipate the end, and was making preparations for the retreat from the Witwatersrand and the abandonment of the mine, which followed later. The cessation of gold payments, and the giving of forced currency to the notes of the State Bank are very significant, not only of this fact, but also of the determination of the Government officers to take care of themselves. It is quite apparent that they understood that it would be necessary to abandon Johannesburg to the advance of Lord Roberts' army, and that they intended that the gold which had been taken from the mines, or commandeered at the beginning of the war, should be put in a safe place, or at least a place where it could be used after the war had closed. While it is understood that President Kruger has a large amount with him, wherever he may be at present, it is probable that this amount has been greatly exaggerated, and that nearly all the available gold in coin and bars was transmitted to Europe by the French or German steamers from Delagoa Bay, and placed where is can be drawn upon when needed. To whom this gold may belong when the war is finally ended is a question which may possibly cause some complications.

RUSSIAN MINES AND RAILROADS IN CHINA.

If it is true, as the latest dispatches report, that a Chinese force has taken and destroyed the town of Blagoviestchenk on the Amoor River, it is evident that the uprising in China is far more serious and widespread than was at first supposed; and also that Russia is going to have some difficult work in establishing and holding its position in Manchuria. Blagoviestchenk is a town which has grown up from nothing in a few years—like some of our Western mining towns—to be by far the most important in Eastern Siberia, and the largest city of the vast region between Lake Baikal and the Pacific Coast. In fact it was rapidly approaching in importance the old city of Irkutsk, the metropolis of Siberia. It is the chief trading-point on the Amoor, and also the center of the very rich gold mining region which has been opened up in recent years on the tributaries of the Upper Amoor and the Shilka, and in the valleys of the eastern and southern slopes of the Yablonnovoi Mountains. It was the opening of these mines which first gave the town its importance, and the large returns obtained from them have made it a wealthy place, possessed of large warehouses and handsome dwellings.

The granting to Russia of a line through Manchuria from Sretensk to Vladivostok and Port Arthur, and the adoption of this line as the eastern section of the Siberian Railroad, in place of the route first laid out through the Amoor Valley, seemed to assure Russian control of this important province. Great progress has been made on the railroad and prospectors and miners have already made their way into its northern section. No apparent opposition had been made to the new enterprises, and the addition of Northern Manchuria to Eastern Siberia was considered an accomplished fact.

The overturn in China, which now seems to be spreading all over the country, has evidently involved Manchuria. While no details can be obtained, the appearance of an armed force so far north implies great danger to the troops scattered along the line of the new railroad, generally in small bodies and at some distance apart. They were, indeed, looked upon as guards to protect property rather than garrisons. It is also apparent that miners and prospectors at work are in peril.

We may add that nothing has been heard from the American engineers who were engaged in mining and railroad surveys in the provinces north and west of Peking; and it is to be feared that nothing definite will ever be heard.

COPPER PRODUCTION AND CONSUMPTION.

There has been some anticipation among consumers that the copper market would follow the iron and other markets, and that a sharp decline in prices was to be expected. This anticipation has been carried so far that some manufacturers have been buying only for their immediate needs, and have been very reluctant about contracting for any considerable supply at current rates. There is, however, no indication thus far that this forecast of the market is a correct one. Certainly it has not been correct thus far, since copper, although the quotations are below the highest point reached last spring, has recently shown much strength and a tendency to advance rather than to recede. For this we believe that there are substantial reasons, and the present strength of prices is not due to speculation, but rather to causes which it is not difficult to trace.

For some years past the annual increase in the world's production of copper has varied but slightly in either direction from 10 per cent., and this has continued so long that it might almost be accepted as the normal rate in growth of production. During the years of depression which followed the Baring failure in 1891, and our own currency panic of 1893, the growth in production continued, while at the same time there was a falling off in demand. and these coincident movements resulted in the very low prices of the metal which prevailed for several years. With the reverse movement, or increase in activity in trade, which has marked the last two or three years, the demand for copper has again increased; and the improvement has been aided by two special sources of consumption, the first and more important being the great development of electric work of all kinds, and the second the special activity in ship building and chiefly in the construction of warships and war material. The electric demand alone has called for an immense quantity of copper in wire and other forms, and the numerous electric installations for lighting, power, traction and other purposes, which are now under construction and projected in Europe as well as in this country, show that there is no probability of a decrease in the requirements of this class of work for some time to come. There has been recently a marked falling off in the construction of merchant vessels, but on the other hand an increase in the building of warships, in which the proportion of copper used for various purposes is much greater, and the current news indicates that there will be no lessening in the quantities of war material called for.

The production of copper in the United States, as reported by Mr. John Stanton, who acts as statistician for the companies, reached a total of 134,577 long tons for the half year ending June 30th. The increase over the first half of 1899 was 10,030 tons, or only 8.1 per cent.; and it is to be remarked that of this increase 2,190 tons only came from what are known as the reporting mines, which include all the important mines in the country, while 7,840 tons came from what are known as the outside sources, which includes copper from a number of smaller mines and also the copper obtained from ores and bullion which are worked chiefly for their gold, silver or other values. In part this small increase from the reporting mines may be attributed to the fire in the Calumet & Hecla Mine, which prevented any considerable gain by that company, although the results of the fire have not been important enough to cause any considerable change. The gain from the outside sources is due in part to the number of small mines which have been opened, and which are able to ship ore, or smelt it, at a profit at present prices; and in part to the increased quantity of copper-bearing ores which have been offered to the custom smelters. With all the inducements for a larger production which have been presented by the conditions of the market, we find that the growth for the first half of this year was actually less than the 10 per cent. which, as stated above, we have come to regard as a normal yearly increase.

It might have been anticipated—and, indeed, was anticipated by many parties—that the high price of copper would stimulate production very largely, and that mines would be opened in all parts of the world. This has not been the case, however, to any considerable extent in the United States. It is true that many new companies were started, but the number of producing mines thus far added to the list has been small. It must be remembered that the opening and establishment of a new copper mine is a work which in most cases requires a good deal of time and a large sum of money, so that it is not surprising that the gain in production should be only moderate. It is not improbable that in another year the effect of the new mines will be felt and will aid in the reduction of prices, which is not unlikely to be in progress at that time. For the present, however, the effect of the new mines is hardly perceptible.

For the first half of 1900 we find that the foreign reporting mines included in Mr. Stanton's statement show very little change. The total output this year having been 44,053 tons, an increase of only 424 tons, or a little less than 1 per cent. over the previous year. These foreign reporting mines include all the leading mines in Europe, such as the Rio Tinto, the Mansfeld, the Tharsis, the Libiola and others, and we know of no special reason why their production should not have increased, except the fact that some of the deposits owned by the Tharsis Company are beginning to be worked out. The strike of the workmen at the Rio Tinto did not become general until after the close of the half year, and the shipments from that company's

mine have been fully up to the usual standard. It is quite probale, though, that the European mines cannot be expected to assist materially during the current year in meeting any increased demand.

Outside of the mines to which we have already referred, there have been no important changes in production. The shipments of copper from Chile have shown some increase, and there have been mines opened in Peru which promise to be of some importance, but on the other hand there has been no gain in the Australian copper, and the stoppage of the Besshi, the largest copper mine in Japan, which was flooded last fall, has not been made up from any quarter.

To return to our copper production, the consumptive demand in the United States has been fairly good this year, though hardly up to last year's standard. On the other hand, there has been an extraordinary demand for copper for export, and the total quantity shipped to foreign countries this year is no less than 90,229 long tons, or 67 per cent. of our total production. The exports were greater than those of 1899 by 21,945 tons, or 32.3 per cent., and were by far the largest ever reported. In January last we referred to a strong indication that foreign manufacturers were carrying unusually light stocks, and our Paris correspondent has frequently stated that the French and German consumers were running rather dangerously close to the point of exhaustion. The European manufacturers generally seem to have realized that they have held off quite long enough—perhaps too long—in replenishing their stock, and have recently been very large buyers at current prices. We do not think that this movement is at an end, and it is very probable that exports from this country will continue large for the third and possibly the fourth quarter of the year. These exports will support prices and will more than make up for any falling off in the home consumption; and, indeed, that falling off is not as large as has been generally supposed.

A year ago we heard a great deal about the price of copper which some people assured us was prohibitory, and would cause a large decrease in consumption and the substitution of other metals. We did not at the time attach much importance to these predictions, and the results so far have certainly justified our view that no substitute for copper was possible, and that the demand would be really very little curtailed by the higher prices. It is true that aluminum has been used for a few electric installations, but the quantity of copper thus displaced is very small indeed, and the makers of aluminum do not seem able to supply it in sufficient quantity to cause any apprehension on the part of copper producers. The high prices have limited consumption very little, if at all, since in a period of general industrial activity like that through which we have been passing, the question of price and cost is apt to be but little considered in comparison with time.

NEW PUBLICATIONS.

"Nature's Miracles. Volume I. World Building and Life; Earth, Air and Water. Volume II. Energy and Vibration; Sound, Heat, Light, Explosives." By Dr. Elisha Gray. New York: Fords, Howard & Hurlbert. Pages, 244 each. Price, 60 cents per volume.

These two little volumes are fair samples of those more or less successful attempts often made nowadays to "popularize" science. Such books are usually pleasingly written, contain more or less errors in stating facts and give the casual reader the impression, after finishing the book, that he really knows quite a bit about the matters discussed. Of these two volumes the second is perhaps the more successful in that it deals with subjects with which Prof. Gray is familiar, the first volume showing often certain crudities of conception and a lack of exact statement which might be expected in the work of a man dealing with subjects with which he has a reading acquaintance rather than direct personal intimacy. Still, the misstatements are seldom serious and both volumes are written in a clear and interesting style with occasional touches of humor. As they do not apparently aim to be text-books, but simply mild stimulants to an interest in nature and nature's laws, they are deserving of praise rather than criticism. Volume I treats of earth, air and water, describing the formation of coal, limestone, slate and salt, the cause of winds and the formation of clouds, rain and snow, the cause of the tides and the work done by running water and by ice in the form of glaciers, and the evidences of a glacial age. The second volume treats of energy, the forces of nature, sound, music, heat, light, the ether, sight, color and the nature and composition of explosives.

"The Journal of the Canadian Mining Institute for 1900." Edited by Dr. B. T. A. Bell, Secretary. Ottawa, Ont.: Published for the Institute. Pages, 268; illustrated.

This volume, which is Number III in the present series, contains the papers and proceedings of the meetings of the Canadian Institute of Mining Engineers, at the meetings held at Rossland and Nelson, British Columbia, in the fall of 1899, and at Montreal in 1900. It includes many papers of interest and value, a number of them being naturally devoted to subjects particularly Canadian. Thus we have descriptions of the Ymir Mine in Western Ontario, of the Bridge River District, of the Omenica and Atlin Districts in British Columbia, of several mines in the West Kootenay, besides papers on Natural Gas in Ontario, on the Ontario Mining Law, on the Canadian Iron Industry, and on the Old Valley Gravels of the Klondike. There are also, however, some papers of general interest in mining, such as one on the Factors in Concentration, two on Mining Pumps, a very carefully written paper on Methods of Cost Accounting in Mines, and one on Small Economies in Mining, the latter a subject which deserves very much more attention than it is apt to receive. The papers generally are interesting and show good work on the part of the members as well as careful editing by the secretary, and the accompanying discussions are in some cases almost equal in interest to the papers. The report of the secretary on general mining progress in Canada contains many interesting facts. We are pleased to note that the volume is accompanied by an index to its contents, which is full and complete and which deserves special commendation, since this point is very often neglected in volumes of society proceedings.

"Wealth and Progress of New South Wales, 1899." Twelfth Issue. By T. A. Coghlan. Sydney, N. S. W.: Government Printer. Pages, 1048; with map.

Like the preceding volumes of this series, this book contains a great mass of statistical and other information regarding the Colony of New South Wales, its people, its natural resources, its production, revenue, trade, industrial conditions and many other matters. The author has an established reputation as a statistician, and does not seem to be at all confused by the great variety of topics with which he has to deal. Anyone seeking information about New South Wales can consult these volumes with confidence, knowing that he is pretty sure of finding the information that he needs, and that it will be generally put into condensed and intelligible form. This is probably the highest praise that can be given to a statistical work.

New South Wales, unfortunately, has been passing through a difficult period. The bank crisis which followed a period of expansion and overspeculation had a serious effect on industrial enterprise, and this was followed by no less than three years of drought, which reduced the production of the Colony. Its people, however, met the difficulties with an excellent spirit and during the last year conditions have very much improved.

One curious point, to which Mr. Coghlan calls attention, is that while the death rate in most of the Australasian colonies is low, the birth rate in all of them has shown a material decline. This seems to be due rather to the conditions of the climate than to industrial or other material causes, since the decline has been regular and persistent without any regard to the prosperous or unfortunate years. It is a matter which deserves careful consideration, since it has a close relation to the future growth and prosperity of the colonies.

BOOKS RECEIVED.

In sending books for notices will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"Les Richesses Minerales des Colonies Francaises." By L. Pelatan. Paris, France, and Liege, Belgium: H. Le Soudier. Pages, 36; with maps.

"Nature's Miracles: Volume II. Energy and Vibration—Sound, Heat, Light, Explosives." By Dr. Elisha Gray. New York: Fords, Howard & Hulbert. Pages, 244. Price, 60 cents.

"Encyclopedia of Mexican Mining Law. A Digest of the Mexican Mining Code, and a Glossary of Mining Terms." By Richard E. Chism. City of Mexico: Published by "El Minero Mexicano." Pages, 204. Price, $2.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials will only be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

The Elmore Concentrating Process.

Sir: I have your issue of June 23d in regard to the Elmore plan of concentration by oil, and think you have not quite grasped the situation. I have had 25 years' experience in concentration, and should not waste any time over it as a substitute for concentration methods in ordinary cases; but in Germany, Australia and the United States there are a number of cases where losses on brittle ores of copper, silver and gold are very great by water concentration, especially if heavy gangue be present. I send you a copy of the discussion following the paper on the process which you criticised. This brings out a few points of interest. There is one fact against opinions, which is that the Welsh mine is working steadily 50 tons of ore per day, by the process, with very poor labor, after a complete failure of a concentration mill erected by the Luhrig people, and now dismantled. The objection you raise as to its being complicated is, I think, not well taken, for it is exceedingly simple in practice as compared with the adjustments of a concentration mill. The real question is one of cost and saving, and the present stage is simply one of investigating different ores to see if there is a field. You say you can see no advantages it possesses over methods we now have; but I should like to know the present method of separating satisfactorily copper pyrites or bornite from a gangue carrying heavy spar or garnets, conditions existing in several places where concentration has proved very unsatisfactory. My own opinion is that concentration can, in many instances, be improved over present results by a rearrangement of machinery, and that oil will never replace water in most cases; but there are points here, as suggested, promising a distinct field. In the case of the Welsh mine, the oil process followed as a consequence of failure of the concentration mill

after a large expenditure on the latter. I must confess, however, that in my opinion the Luhrig machinery is not adapted to getting best results from such an ore as that tried in Wales by concentration. D.

London, July 12th, 1900.

Standards in Mining Practice.

Sir: In machines we have two classes, one class which requires to be closely watched and tended and directed by forces exterior to itself, while the other and higher class, called automatic, comprises machines whose design is so developed that they will in large measure control and regulate their own action with greater economy of operation and saving in labor of hand and brain.

As of machines, so of nations. Some are not in any happy and effective way self-governing, and when left to themselves become differentiated at once into classes and sink back into a barbarous and unprogressive condition. Others contain within themselves the power of regulation and redemption. The English, for example, may be defined as an automatic people. They are naturally independent of foreign or extraneous pressure, not because it is their fortune to be so, but because they carry their pressure and government complete within themselves. And the index of this admirable capacity is their capability of self-criticism. What merciless self-critics they are! The space in their public press which might justifiably be given to approbation of their achievements is filled with soundings of alarms and feelings of the public pulse and strictures upon the policy of the powers that be. They do not wait to be corrected. They correct themselves. An illustration of this power is shown in the attention being given by the English press to American methods of manufacture, and the frank depreciation of their own methods as less econmical and effective.

Let us be equally frank, or rather, if we are to keep in advance, let us be more frank, and go in advance to judgment. American shop methods leave much room for improvement. The magazine articles so much in vogue lauding our practice are very largely outlines of ideals, which remain to be filled in with facts. In the railroad field it is notorious that "M. C. B." standards are subject to many lapses and variations in the practice of the different roads. The history of the interchangeable system which I have traced ("Reports of Tenth Census, United States, 1880," and "Magazine of American History," June, 1884), is a history of backsliding and incompleteness. Whitney invented the interchangeable idea, then Moore, and Warner, and Buckland and others invented it over again, each claiming that it was by no means realized in the state of the art as he found it.

Now our great improvement in tools and gauges has gone far to clinch interchangeability if it be faithfully sought in shop practice. But I wish to speak of a step in advance. There is a field of use far wider than the shops, a field whose orders dictate what the shop shall build. In this field, and especially in that part of it known as the mining field, there is a great economic opportunity in standardization.

The advantages of standards in facilitating repairs will be apparent to every millman. In making practice uniform and easy and promoting comparisons with the result of the best work both in the shop and at the mine, it promises much. Of a machine four-fifths of whose value is in labor and shop expense, when built singly, it is a fair average statement to say that the cost could be reduced two-fifths if the same machines were built by the dozen. I notice that some machines, notably and needlessly of widely varying designs for the same purpose, cost as much now as they did 10 years ago, although now better finished. Other machines which are now built alike in lots have had their cost reduced two-thirds or three-fourths in the same time.

The selection of machinery is a critical matter in the development of a mine. Many make shipwreck at this point because managers must needs add to the uncertainties of the mineral deposit the further uncertainty of inventive departures from standard methods. Invention is costly and so a good manager cannot afford to be inventive out of the funds of development available for an ordinary mine.

I might say much more of standards in detail for mining work, but will satisfy myself now with emphasizing the value of standardizing in general practice as a corollary to improved shop practice. In such shop practice American and English works will compete in wholesome rivalry, but this progress can be vastly quickened by the adoption of standards on the part of those who use the machines.

And how far can this go? Well, as to that, I would quote a sentence from a description of a Western shop (Pawling & Harnischfeger's): "Everything is standard." And I would compare that with the statement of the manager of a great mine at which millions have been wasted in experimental machinery. "We have here examples of every kind of machine from all parts of the world." It was a great curiosity shop, everything misfit and much idle. Of the well-appointed mine it should be said as of the well-appointed shop: "Everything is standard."

Charles H. Fitch.

Oak Park, Ill., June 30th, 1900.

PYRITES IN CANADA.—The Ontario Government Assay Office at Belleville, Ont., writes: "An inquiry has been received for properties containing iron pyrites or mundic located near railway shipping facilities, from the Mines Contract and Investigating Company, Toronto. Pyrites are used for the manufacture of sulphurous dioxide gas used extensively in bleaching wood pulp and paper, also for manufacture of sulphuric acid.

"In this connection it is worthy of note that several attempts have been made to ship iron pyrites from deposits in Eastern Ontario, but the excessive freight rates consumed all profits. The Laurentian Pulp Company, of Three Rivers, Quebec, making wood pulp and paper by the sulphite process, advises the erection of small roasting furnaces at the mines, and the shipping of the condensed and liquefied sulphurous acid gas in cast iron cylinders."

MAJOR LOUIS IRVING SEYMOUR.

Written for the Engineering and Mining Journal by Francis Drake.

Louis Irving Seymour, an American citizen, who was commanding a corps of Engineers in the Imperial Service in South Africa, was killed in an engagement at Zand River, Orange River Colony, on June 14th. His death was noted briefly in the "Engineering and Mining Journal" June 23d. His corps was, at the time, engaged in repairing the broken railways and bridges. This corps was known as the Railway Pioneer Regiment, and was composed of engineers and mine employes of Johannesburg, many of them being Americans; the purpose of the corps being to assist the Royal Engineers in repairing the damage done to the railways and lines of communication generally. The formation of such a body was conceived by Major Seymour, and the subsequent enrollment and organization were due almost entirely to his personal efforts. An Imperial officer, a Royal engineer, was placed in chief command, Major Seymour being second.

Major Seymour was born at Whitney Point, Broome County, New York, on December 23d, 1860. He was educated in his native village, and at the age of 17 entered the machine shops of John Cotter at Norwalk. After working three years in these shops he went up for examination

MAJOR LOUIS IRVING SEYMOUR.

at Annapolis to enter the United States Navy. After he had passed the examination it was found that he was a few weeks too old, so he had to abandon the hope of having the Navy for his career. After working for the Lackawanna Iron and Coal Company from 1881 to 1884 he accepted an engagement offered him by the Dickson Manufacturing Company to erect a mill engine for El Callao Gold Mining Company in Venezuela. After finishing the erection he became the chief mechanical engineer of the company, which was at the time under the management of Mr. H. C. Perkins, the late Captain Mein being Mine Captain. Early in 1886 Major Seymour returned to the United States, and on June 30th, 1886, he married Miss Kate Perry, of Whitney Point. He then held positions with the Washington Cotton Mills of Lawrence, Mass., and with the Plymouth Cordage Company of Plymouth in the same State. While working for the latter he became more widely known, and in February, 1890, he was engaged on the recommendation of Mr. Hamilton Smith, to proceed to Kimberley in South Africa, where he took up the work of chief mechanical engineer for the De Beers Consolidated Mines.

In July, 1893, he became managing director of Fraser & Chalmers, Erith, England, at the same time retaining the position of consulting engineer to the De Beers Consolidated Mines. In the middle of 1896 he took up his residence in Johannesburg, holding the position of mechanical engineer to Messrs. H. Eckstein & Company and the Rand Mines, Limited. On the departure of Mr. Hennen Jennings, his connection with the firm of Messrs. Eckstein & Company became closer still and it is not too much to say that he was, at the time of his death, that firm's most trusted adviser regarding all mining and mechanical matters.

Major Seymour has left his mark on almost every installation of machinery existing at Johannesburg to-day. His patented inventions were few, the principal one being a well-known friction clutch. He had many original ideas, which he put into use, but also, with characteristic magnanimity, allowed others to use. His forte was to adapt and improve what came to his hand.

He was brilliant as an organiser. As an administrator and executive head he commanded the unlimited confidence of capital. The esteem

and affection of his friends were profound and enduring. His professional colleagues will miss his able and vigorous counsels; and innumemable subordinates and employes wil deplore the loss of a generous adviser and friend.

Major Seymour leaves a widow, two brothers and two sisters.

THE TRANSVAAL MINING INDUSTRY DURING THE WAR.—X.*

Special Correspondence of the Engineering and Mining Journal.

(Continued from Page 677.)

With regard to the coal supply in South Africa, it should be noted that the commanding general, Botha, at the time the Transvaal forces retired from Northern Natal, requested the State Mining Engineer not to destroy the coal mines entirely, but to damage them so as to prevent the output of coal for at least six months to come. In the Transvaal the coal in most cases is near the surface, and the seams are very thick. Few of the mines are deeper than 120 ft. In Natal the mines are deep, and as a rule there are several seams, each of small thickness. The Natal mines are also very fiery, and require considerable expense for pumping and ventilation. The production of these mines before the war was from 35,000 to 37,000 tons a month, from 10 collieries, and about half of this coal was sold for steamship purposes at Durban.

Many engineers who are familiar with the situation anticipate that the coming coal supply for the ports of the Indian Ocean will be obtained from the Middelburg District of the Transvaal. The coal from this district can be shipped easily and at small expense to Delagoa Bay, and already there has been built up a considerable trade in coal for the supply of steamships and for export.

At the beginning of April, contrary to statements which appeared in some of the papers, there was no Englishman remaining in the Transvaal in charge of a mine. Of the five gold mines running, which were not directly operated by the Government, the Village Main Reef, and the Wemmer, were under charge of Mr. H. Stephan, a Frenchman; the Geldenhuis Estate was operated by Mr. Maceman, also a Frenchman; the Ferreira was managed by Mr. Walker, a citizen of the Transvaal, and the Worcester by Mr. J. L. de Roos, also a citizen of the Transvaal.

At this time, early in April, the mines in operation had all the native labor which they required. A large number of the native laborers had remained when the war broke out and were not permitted to leave Johannesburg. The question, however, did not at all disturb the Government managers since it would have been easy for them to draw an additional force from among the Zulus and Basutos in the eastern part of the Transvaal should more men have been required.

The March gold output was from eleven mines, of which five were operated by the Government. In the following table the returns from the same mines for August, 1899, are given, in order that the reader may compare the output under war conditions with that of a month when they were running under charge of the companies. The output is given in crude or bullion ounces; Transvaal gold usually averaging about .820 fine:

Mines worked by Government:	March, 1900.	Feb., 1900.	Aug., 1899.
Robinson	20,397	12,824	17,616
Bonanza	9,941	9,706	7,887
Langlaagte Deep	2,173	2,680	8,129
Rose Deep	10,053	7,024	17,025
Ferreira Deep	10,786	10,209	10,034
Total Government	53,350	42,443	60,691
Worked by Companies:			
Crown Reef	4,208	7,334	13,404
Village Main Reef	8,423	9,745	13,654
Wemmer	6,407	6,109	7,965
Worcester	1,325	1,140	2,367
Geldenhuis Estate	2,938	2,476	11,458
Ferreira	9,183	5,889	12,808
Total companies	32,484	32,693	61,656
Totals	85,834	75,136	122,347

Of the mines which were worked by the companies, the Crown Reef was only running its mill for part of the month, and working up the ore on the dump. At about this time strict regulations were adopted against operating any of the mines or mills on Sunday, and this reduced production to some extent.

Mr. J. Klimke, the State Mining Engineer, who left for a trip to Europe some time before the war, reached Johannesburg on April 14th. He had been unable to return by way of the Cape, although he had left Europe before the declaration of war, and had been forced to return and take a new start by the German steamers to Lourenco Marques. During his absence, as heretofore noted, Mr. J. W. Munnik, the Assistant State Engineer, had been in charge. Under his direction it is a fact that all preparations had been made for laying dynamite through the mines, but on Mr. Klimke's return this policy of destruction was abandoned and the dynamite charges were all removed.

The gold refinery at the Robinson Mine was completed early in April, and under charge of Mr. Bettel was able to refine the gold required for the Pretoria Mint. It must be admitted that at this time there was some stealing from the mines, chiefly in the form of amalgam from the batteries. This amalgam could easily be hid somewhere about the mill and disposed of at a convenient opportunity. Some of the stealing was done by white men, but probably more by the Kaffirs, and in the latter case it went chiefly to the storekeepers, who took the amalgam from the black workmen and paid them only an insignificant part of its value.

At the beginning of May there was some difficulty about supplies of fuel, and the Town Council of Johannesburg offered gas coke for sale from the gas works, charging £4 10s. per ton of 2,000 lbs., or 6s. 6d. per bag of 133 lbs. for first-class coke. Second-class coke and screenings, which were not suitable for smelting purposes, was sold at £1 10s. per ton, or 1s. 6d. per bag.

*Previous papers in this series have appeared in the "Enginering and Mining Journal," March 10th, 1900, page 287; March 17th, page 317; March 24th, page 347; March 31st, page 377; April 7th, page 436; April 28th, page 496; May 5th, page 531; May 26th, page 616; June 2d, page 677.

On May 2d, the President's proclamation requiring the expulsion of all British subjects took effect, and quite a number were sent to Delagoa Bay. There were, however, 141 permits issued, permitting British subjects to remain until further orders, and no action was taken in the case of women and children having no male members in the family.

About this time also, a special order was issued by the Government that in those mines which were still operating exploration work should be carried on as usual, and that a proper amount of development work should be done in each mine in order to keep up the supply of ore. It may be said, however, that this order was not carried out. With regard to the native workmen, a supplementary order was issued that no black man should receive wages in excess of £1 per month of 30 days, and a fine of £10 was imposed for any violation of this rule. Officers in charge of mines for the Government were given authority to commandeer any natives whom they might need, but they were not allowed to take any from the gold or coal mines already in operation. Any men commandeered must be from among those who were not employed.

On May 17th an important proclamation was issued by the Government. This provided that from date of publication of the decree the notes issued by the Bank of the South African Republic should be considered legal tender at their face value in payment of all debts. At the same time the Government commenced to pay out these notes, and it was generally understood that the gold obtained from the mine and coined at the mints was to be kept in reserve. This forced currency of the bank notes was not due to any scarcity of coin, since there was a sufficient quantity held by the Government, and also by the banks, to meet all requirements. The smaller banks were required to turn over their gold to the Bank some time before. The excuse given for the decree was that the Pretoria Mint was not able to coin gold fast enough, but this excuse was evidently only a pretense. It is true that the Pretoria Refinery was insufficient, but the refinery at the Robinson Mine, above mentioned, was quite sufficient to meet the emergency.

All this time in Johannesburg the water, gas and electric light companies continued in operation, although with a reduced staff. They continued to make charges and to send bills to those who remained in the town, but under the Government decree, issued some months before, were unable to collect these debts.

The news of the reverses in the Orange Free State, and of the probable advance of the British army, was not published in Johannesburg for some six days after the occurrence, although the Government was undoubtedly in possession of the facts. The news caused a great sensation, although the general opinion among the burghers and officers was that it would be followed by a reverse and a retreat of the British. Work at the mines continued as usual, and there were no signs of any preparations for a change.

BRITISH COLUMBIA.—MOUNT SICKER DISTRICT, VANCOUVER ISLAND.

Special Report of W. M. Brewer, Traveling Correspondent.

In the fall of 1897 outcrops of iron capping were discovered on Mount Sicker, which is located nearly 50 miles northerly from Victoria, and about 6 miles from the line of the Esquimalt & Nanaimo Railroad; the nearest station is Westholm, from which point a good wagon road has been built to the Lenora Mine, which was the first discovery made.

The first development work disclosed the fact that a high grade of chalcopyrite occurred under the iron capping. The excitement which followed this discovery resulted in an influx of prospectors to exploit the surrounding country, who located a large number of mineral claims. Since that time development work and prospecting has been carried on in that vicinity, until to-day, because of the shipments of ore from the Leonora, Mount Sicker District is one of the most populous mining camps on Vancouver Island. The close proximity of the railroad makes this district easy of access, as well as a very desirable camp from which to ship ore, because the railroad transports shipments to either Oyster Bay, about 30 miles distant, on the east coast of the island; where there are good facilities for transferring from the railroad to vessels on salt water, or to Victoria, where the facilities are equally good. Chemainus Harbor on the east coast of Vancouver Island, is much nearer than either of the others, but up to the present time no shipment has been made from that port. Should a smelting plant ever be erected on the east coast of Vancouver Island, Chemainus would probably offer as many advantages as any point along the coast, although, for the reason that coke is manufactured at Union, near Comox Harbor, it might be considered more advisable to ship ore to that point, either by rail from Westholm, or steamer from Chemainus, than to ship the coke from the ovens at Union. That there will be a demand for a smelting plant, somewhere on the east coast of the island in the future, would appear to be assured, when the occurrences of copper ore on Mount Skirt, about 10 miles from Victoria, as well as Mount Sicker, are taken into consideration.

The structural geology of Mount Sicker and vicinity is apparently not quite as complicated as in some other portions of the island. The summit of Mount Sicker has an elevation of about 2,000 ft. above sea level, and the mountain is principally composed of a schist, which would be probably classed as a sericite and which apparently contains much chlorite and feldspar. This belt of schist extends for some miles easterly from the mountain, and is also found to continue to the west (magnetic); but the trend of the mountain chains of Vancouver Island is generally about North 60° West (magnetic). The ore bodies so far discovered in the district are found in the schist, with their line of strike conformable with that of the schist. In the underground workings at the Leonora Mine it has been demonstrated that between the ore and one of the walls there is a considerable thickness of clay, and beyond that clay is encountered a hard, flinty rock which apparently resembles silicious slate (phthanite), as described by Dana, and from which possibly the sericite schist derives its origin. Some 2 miles easterly from the summit of Mount Sicker the writer observed a green-

ish rock, having a porphyritic structure, and on the north side of the mountain itself the same class of rock was also noticeable.

The most extensive development work in the district has been performed on the Lenora and Tyee mineral claims, the latter adjoining the former on the east end. On the Keystone mineral claim, which adjoins the Lenora on the west, the owners are commencing a thorough exploitation with the expectation of locating an extension of one of the Lenora ore bodies. The term "ore bodies" is used, because from the writer's observation, it appears as though in the underground workings of the Lenora it is demonstrated that the ore bodies have a lenticular structure and lie in echelon to each other, or else a fault has occurred which has thrust a portion of the ore body over, and broken its continuity. The ore body discovered on the Tyee mineral claim has been opened very near to the east end line of the Lenora, and is generally considered an extension of that ore body.

The underground workings of the Lenora claim consist of an adit, driven with the strike of the schist at a depth of about 120 ft. below the outcrop; a winze was sunk to a depth of about 100 ft. below the adit level from the bottom of which cross-cuts were run, and the writer was informed, ore was encountered at a depth of 98 ft. north from the bottom of the winze. As work had been suspended on this lower level for some time, these cross-cuts were not examined by the writer.

The ore body which was exposed nearest to the mouth of the adit was mined by the original owners of the property, a portion of the ore was shipped, but a considerable amount of apparently high-grade chalcopyrite remains on the dump. No examination was made of the stope from which the ore was taken, but the stope, on what is apparently the second ore body, which was exposed by the present owners, was examined. From this examination the writer formed the opinion that this ore body above the adit level possessed very considerable extent; its extreme thickness being about 30 ft., with the stope extending upward nearly to the surface. This stope is timbered very thoroughly, on the square-set system, and every precaution has been taken by the foreman, Mr. Buxton, an old Nevada man, to insure against accident.

While both breasts of this stope were in ore on several floors, yet, as the ore body had not been drifted on the adit level, beyond the eastern branch of the stope, at the time of the writer's visit June 27th, it was impossible to determine the full extent of the body or to measure up ore in sight in the mine. Apparently, because of the high price of copper, it has been considered more important by the management to stope out ore for shipment, than to extend the development work with a view of blocking out ore in sight and demonstrating the capacity and life of the mine.

The first ore shipped from this mine was transported from the sorting tables at the mouth of the adit to the cars at Westholm, by wagon road, but some time early in the present year a crude tramway with timber rails was constructed from a point on the railroad about a mile south from Westholm, thence along the mountain side to within about two miles and a half of the mine workings. At present the ore is transported by wagon down the mountain to the terminus of the tramway, where it is transferred on to tram-cars and run to the tipple at the railroad track.

It has been the policy of the management to ship no ore which carried less than $20 per ton in all values; indeed, the writer is reliably informed that the bulk of the ore shipped has smelted about $25 per ton. Of this grade of ore there had been shipped about 3,000 tons. There is at present on the dumps a large quantity of second grade ore, which did not carry sufficient high values to warrant the payment of freight and treatment charges, but which could be smelted at or near the mine profitably. In fact, in a smelter from 100 to 200 tons capacity, in this district, a $12 ore could be treated satisfactorily, and there is a possibility that a $10 ore would pay to treat.

In the near vicinity of the Lenora mineral claim are located the Seattle, Copper Canyon and Queen Bee claims; these, however, are not on the same lead as the Tyee, Lenora and Keystone, but are situated northerly from those claims though in the same belt of schist. The Chemainus River flows along the western base of Mount Sicker, and separates that mountain from Mount Brethon. Prospecting had been done on the latter and several mineral claims located, on which limited development work has been performed, and on some of which work is now being carried on.

The Tyee property had recently been floated on the London market for £120,000, the vendors receiving £80,000 in stock for the property.

From Mr. Pellew-Harvey's report on this property, which was the basis on which the flotation was made, the following statements are extracted: "The general dip of the Tyee lode is approximately 72° north, therefore the extent of the working ground within the property is as follows: From the main shaft west to the Lenora boundary, 160 ft.; from the main shaft east to the east line, 1,250 ft., where the Magic Fraction and Richard Third claims are met; from the main shaft north to the north line, 1,100 ft. on the dip: from the main shaft south to the south boundary, 400 ft. to join the Herbert claim. On an outcropping of great promise, 160 ft. east of the well-known Lenora Mine, a shaft 8 ft. by 6 ft. in the clear has been sunk vertically to the 200-ft. level. For the first 30 ft. the ore was found on the foot-wall, and measured from 3 ft. to 4 ft. in width, the assays being very encouraging. From the first sinking operations about 100 tons of good ore were extracted, 75.5 tons of which were sold to the smelter, but there still remains a large quantity of ore in the ground behind the timbers. At 160 ft. a drift has been run 22 ft. south for the purpose of ascertaining the extent of the mineralized zone. This distance, together with the north drift measurements, will place the width of the mineral-bearing area at something approximating 70 ft.

"The north drift referred to was run for a distance of 22 ft., when the solid ore-body was struck. The last 12 ft. of this distance was through black shales which are closely associated with the ore-body. After leaving the black shales we passed through 20 ft. of ore-bearing ground made up as follows: The first 7 ft. consisted of almost solid copper ore: the next 5 ft. were coppear bearing shales; after this came another 2 ft. of excellent copper ore of the same character as the first copper ore; the next 5 ft. were copper bearing shales, all carrying copper and gold values. This gives 20 ft. of ground in the drift carrying copper, gold and silver. After this some gouge matter was struck; the drift was then carried some 3 ft. 6 in. further north and discontinued. Some fair gold samples were taken from near the face of the farthest point reached; therefore the entire width of this mineralized zone cannot be considered completely explored. A drive was run for about 30 ft. northeast through the copper shales, and some of the best gold values yet found in the mine were obtained at this point. Another cross-cut was also started west of this also showing up good ore. From the 200-ft. level there is a drive 56 ft. north, which has cut the schists just referred to at 38 ft. in, but before striking the main body 20 inches of good ore were driven through. Here also black shales were associated as a bedding for the ore; this gave 4 ft. 6 in. of copper ore, which corresponds in every respect to the ore found in the high level."

ABSTRACTS OF OFFICIAL REPORTS.

Calumet & Hecla Mining Company, Michigan.

The very brief and unsatisfactory report of this company, for the year ending April 30th, 1900, gives no particulars of its operations and very little real information of any kind. There is no statement of income or profits, the only financial information given being the balance sheet at the close of the year, which is as follows:

Cash at mine office		$149,396
Cash at New York office		15,000
Cash at Boston office, exchange, copper at 15c. per lb. and mineral at 4c. per lb.		5,738,463
Bills receivable at Boston and mine		573,576
Insurance fund		504,584
Total assets		$6,981,019
Drafts in transitu	$96,827	
Employes' aid fund	32,825	
Bills payable at Boston and mine	365,509	
Contracts for machinery, Buffalo Smelting Works additions, pine lands, railroad additions, etc	1,425,000	
Cash set aside for equipment of amygdaloid lode at mine	800,000	
		2,720,161
Balance of assets		$4,260,858

The balance or surplus of assets compares with $4,398,544 last year, showing a decrease of $137,686. The dividends paid amounted to $80 per share, or $8,000,000 in all.

The report of President Agassiz says: "During the past year we produced mineral equal to 44,548 tons of refined copper. Our product in refined copper was 49,312 tons. For the previous year our refined copper product was 44,450 tons. The price of copper has varied from 18½c. to 16c. per pound. It is now 17c. There have been paid during the past fiscal year four dividends of $20 each.

"We have, as in the previous year, continued to push the openings underground both in the conglomerate and in the Osceola amygdaloid belt. I ought to state that the marked improvement noted last year in the character of the conglomerate lode at the south end of the mine has not continued, and that the lode at the north end of the mine in the lower levels is not as rich as in the upper ones, or in the central part of the mine, the quality of which has not changed. On the Osceola lode we have now reached a depth of over 1,300 ft. in the No. 13 shaft, and have since last year opened Nos. 16 and 17 on the Osceola, giving us a length of over 9,000 ft. on that belt. We have continued to stamp amygdaloid rock with one head supplied principally from the openings, and from a very limited stretch of stoping ground near No. 13.

"During the past year we have built 60 dwelling houses for the use of our employees. We have erected and partially equipped shaft houses and change houses at four of the amygdaloid shafts, and are preparing the ground for the foundation of three engine houses at Nos. 13, 14 and 15 shafts. At No. 5 Calumet we have erected a pair of hoisting engines to run that shaft, which are working satisfactorily. Half of our second coal-dock, of a capacity of 100,000 tons, has been erected at Torch Lake; the whole dock should be in commission this Fall. The foundations have been laid for an extension of the Hecla mill. It will contain 6 heads, and should treat 2,500 tons of amygdaloid rock a day. Four boilers have been added to the mill plant. The experiments which have been making at the mills, with a view of diminishing the loss of copper carried off in the waste sands, have resulted in equipping one of the heads with washing machines differing from those generally in use in the Lake Superior district. The results obtained thus far are satisfactory.

"The Hecla & Torch Lake Railroad has been extended to the head of Torch Lake, where we intend to erect a timber mill during the summer. We have purchased a tract of timber land near Whitefish Point. At the Lake Linden smelting works a new mineral house has been erected, also an addition to the boiler-house has been equipped with two boilers, and the machine shop has been remodeled. We have also built a new tram line for loading the mineral intended for the Buffalo smelting works. At the Buffalo Smelting Works we have purchased an adjoining parcel of land, and are building an electrolytic plant for the treatment of a certain portion of our product, including that which carries the larger values in silver. We have also erected a double furnace with a Walker table, from which we hope to obtain a great increase in the rapidity of casting our copper. We have also built an electric conveyor for loading the furnaces, and have made a contract for the purchase of an additional frontage on Niagara River. Our original lot is now entirely covered with buildings, and we shall need the additional land for future extensions of the plant.

"In consequence of the continued high price of copper, we have continued the increased production of the previous year.

"The expenditures on account of the aid fund for the fiscal year amounted to $60,903. The value of the aid fund at cost is $151,530. As in the past year, we have continued to pay the contributions of the men to the aid fund."

PLACER-MINING IN THE SOUTHERN OURALS.

Written for the Engineering and Mining Journal by Charles Tappan.

(Concluded from page 36.)

In deeper mining, the cost of stoping out the ground between drifts is about the same as the cost of the original drifting. Any attempt to introduce the caving system would be stopped by the head engineer; that method is not taught in the School of Mines. Nothing stronger could be said of the inefficiency of the native miners than is implied from the action of the managers of certain lode mines near Kotchkar, in importing Italians at three times the wages paid to the Russians. As everyone in the country is a farmer, and has his own field of grain and his own horses for plowing, cows for milk and sheep for wool and meat, he is entirely independent and does not work at mining from necessity. Even superintendents and foremen have their allotments of plow land from the community, and raise grain sufficient for their own family use. There is really no laboring class in the proper sense of the word. There are no people, except in the large towns, who are not farmers with a right to their lands which is—for all practical purposes—as good and perfect an ownership as a fee-simple in the United States. All this tends to making the labor very unsatisfactory and unreliable. At the most critical times, when everything depends upon getting some work done with the greatest possible speed, the whole force of workmen will go home to plow, or sow, or reap. There was an excellent harvest in 1899, and harvest hands received higher wages than had ever been paid in the history of the country. All the mines had to double wages, and then could not secure half the men wanted. Holidays are numerous and generally faithfully observed. A very great holiday will keep the whole force drunk for several days. I found it impossible to make a contract for a specific amount of work to be finished or no pay. The only kind of agreement I could get was to allow the contractor to stop—with full pay for what he had done—whenever the difficulty of the work, or the inclemency of the weather, or a thirst for vodky made him feel like throwing up his job.

The washing of the sand is done in several ways. The most usual is on a "washgert"—sometimes called "macherta"—which bears some slight resemblance to an American rocker. It is made of 2 or 3-in. plank. I saw many made of plank sawn on one side and hewn on the other. The washgert is not set on rockers, but is planted firmly on the ground within a few feet of a stream or pond. The bottom of the hopper is a cast-iron perforated plate about 2 ft. square. As soon as the hopper is filled with sand one woman pumps water into it, and two others stir up the clayey gravel with small shovels, knocking the clay from the boulders and throwing out such stones as are too large to go through the perforations, which are about ½ in. in diameter. The finer sand runs over the bottom of the apparatus, which is set very carelessly, sometimes nearly flat and then with a steep fall. There are only two strips of wood for riffles. The whole machine is about 4 ft. long. An additional sluice box with cloth or matting is sometimes added. A piece of sod with the roots up is also used as a sluice. Occasionally the accumulated clayey stuff on the bottom is stirred up and leveled off with a hoe. Mercury—about a tablespoonful—is thrown in above the upper riffle. The clean-up is made at the end of each day's washing. Three women do the work and one man with a horse and wagon hauls the sand from the mine. Twenty wagon loads is the customary day's work. If the haul be very long two wagons may be used for one washgert and the expense is proportionately increased. But no matter how short the haul is, 20 loads is the maximum for a day's work, and the expense is not decreased. The wagons vary from 6 to 9 cu. ft. capacity. The employer's only protection against having too little sand washed is to refuse to hire people with small wagons, for be the wagon large or small, 20 loads is a day's work. The rate of pay varies with the demand for farm laborers, and ranges from 80c. to $1.30 for 20 loads, say from 12 to 20c. per cubic yard.

The percentage of gold saved by the washgert is extremely variable and uncertain. Very much depends on the foreman; if his back is turned, the clayey gravel will be thrown out before it is half cleaned; clay will also be allowed to accumulate above the riffles. It is not uncommon for the saving to be as low as 40 per cent., and when great care is used it may reach 80 per cent. Additional sluices with cloth, matting or sod, sometimes return more gold than is found on the riffles of the washgert. Many of the old tailings dumps have been washed two and three times.

Sluices or "amerikankos" are of several kinds; some are worked by hand, others by horses or steam. The hand amerikanko is merely an enlarged washgert. The sluices are longer, there are more riffles, and somewhat better work is done. Expense of hauling and washing may be as low as 7c. per cubic yard, but this is only under the most favorable circumstances. The cost of building a hand amerikanko is from $25 to $50.

The steam machine still follows the general plan of the washgert. It consists of a heavy cast-iron plate, about 8 to 10 ft. in diameter, and perforated with ½-in. holes. Around the edge of the plate are flaring sides which form the hopper. Four arms revolve slowly over the plate, and to each arm two plows are fixed. These stir up and grind the gravel, disintegrate the clay and force the fine stuff through the perforations. Every few minutes a door in the side of the hopper is thrown open and the coarse stones and boulders are raked from the perforated plate. All pieces that are not thoroughly cleaned and have clay still adhering are thrown back upon the plate for further grinding. A pipe sprays water on the gravel in the hopper as it is being stirred. The fine stuff falls through the perforated plate on to a sluice 8 to 10 ft. wide and from 15 to 25 ft. long. The sluice is set at a very steep angle, sometimes as great as 5 ft. in 10, or 30° from the horizontal. Clay is constantly balling up on the sluice, and men with hoes stir it up and level it. A set of mechanical hoes, constantly revolved by a belt, would be a cheap and excellent improvement. The boulders from the top of the plate, and the tailings, are dumped into cars or wagons and hauled off by horses. The extremely flat drainage slope makes it impossible to find proper tailings dumps. Sluices of the real American type using thousands of inches of water could only be worked by the aid of enormous pumps. At the Gonshin Mine, near Treeby, such a machine as described above treats 300 cu. yds. per diem at a cost of $45; this includes mining, hauling and washing. The figures for the separate items were not obtainable. The mining is open cut work with very little overlying earth, the haul from mine to mill is 2 miles on a railway on which one horse and driver pulls only one car. The cost of washing alone is probably 3 or 4c. per cubic yard. Machines for washing are sometimes fitted with a trommel instead of the stationary plate with revolving plows. It is impossible to treat this extremely clayey material without mechanical stirring. Improvements upon the native methods must be sought in the line of more thoroughly dissolving the clay, of separating the dissolved clay from the smaller gravel and running the slimes over blanket sluices. Such a machine need not cost very much, and when intelligently handled would be able to make a good saving of gold.

Unless one learns something of the system of working called "staratali," it is impossible to understand the mines of the Ourals. This system is somewhat like the English tributing, or the chloriding of Nevada. The staratali—from the Russian verb meaning "to endeavor"—take upon themselves all the expense of mining and washing the sand, and receive from 60 to 70 per cent. of the value of the gold recovered. The owner or his representative takes the gold as it is washed, weighs it and pays the stipulated price. This is a very simple statement and seems to require no further explanation, but it really accounts for many things otherwise unaccountable, and upon it depends the successful working of many mines.

When one sees hundreds of shafts covering many acres of land, one naturally concludes that much gold has been extracted. The truth may be that gold was only found in one shaft out of 20. If one man is fortunate enough to find a rich pocket, and makes in a few days more than the usual earnings of a year, many men will be anxious to try their fortunes near the same place. The amount of energy so wasted is incredible, and the lesson learned is that it is useless to search for gold in any old mine that has been worked by staratali. A few very small pockets of pay sand may be left, but it will cost more to find them than they are worth.

As an instance of how thoroughly the staratali work out a mine, I will give an account of their working on the Marienski Placer. This mine had formerly produced some very rich sand and it was dotted all over with old shafts. There was a rumor that the rich sand had not all been taken out, and a number of staratali workers were anxious to try their fortunes. For two months 20 people worked hard; sometimes they sunk shafts that fell into old workings; other times they found very poor sand. The total gold recovered was worth $24, just 2c. per diem for each man. These people finally gave up because winter had set in, although they were still hopeful that a rich pocket might be found. When the staratali abandon a mine it may as well be abandoned by everyone. As the staratali work in the mines only when they cannot employ their time in the grain fields, they do not look upon their wasted labor as a real loss.

There are no stage lines carrying passengers in Russia; after leaving the railroad all traveling is by wagon, and two people can travel together at the same expense as one alone. At every village horses can be hired at 4 kopeks per verst (say 3c. per mile) for each horse. Two horses are usual, three are needed for muddy roads or with an extra heavy wagon. The amount paid for the horses covers the use of the wagon and the pay for the driver, but the latter always expects 15 or 20c. as a tip "for tea." If one happens to feel generous and gives more, the driver will be profuse in his thanks and say, "That is enough for tea and sugar also." The wagons are buckboards, surmounted by a large basket. There are no seats or springs. The baggage and bedding may make a comfortable seat at starting, but 15 minutes jolting sifts the men to the bottom and the baggage endeavors to get on top.

Along the regular post-roads the people who supply post horses never drive further than the next regular station; this necessitates a change every 15 or 20 miles. The horses are apt to be in pasture, and 2 or 3 hours are usually lost. Whenever possible it is better to hire private horses and go 30 or 40 miles without change. The speed is generally 7 miles an hour, though occasionally 10 or 12 miles an hour are made. In some villages the hiring of horses is a strict monopoly, farmed out annually to the highest bidder, the premium being paid to the treasury of the village. The roads are not as good as in our Western States, but they are never steep. I did not see a wagon with a brake on it; they are unknown.

Passports are, of course, absolutely necessary, and must receive the visé of a Russian consul before the bearer can enter the Empire. After leaving Moscow one may travel for months and never be asked for the passport. But like the Texan's six-shooter, when it is wanted it is wanted quickly. Anyone staying in the Empire more than a year must have a ticket of residence attached to his passport. The hotel keepers are obliged to send each guest's passport to the police office, but as hotels are unknown except in the larger cities, the traveler through villages soon forgets all about the police. In places of 15,000 to 20,000 people there are houses with quarters for rent and where good meals are served. In villages, quarters for rent are advertised by wisps of hay tied to the ends of poles and stuck up over the gate. At these places the traveler supplies his own bed, and if he is wise he will bring along his own provisions and cook. Poultry and eggs can be bought always. Meat is not always to be had. Vegetables are also uncertain, especially in the spring and early summer. In July and August there is an abundance of wild berries, and they can usually be bought either in the villages or from the peasants in the fields. Canned goods are not to be had at all. Dried fruit is to be had, but not very good; dried peas and dried mushrooms are both excellent, and are easy to carry.

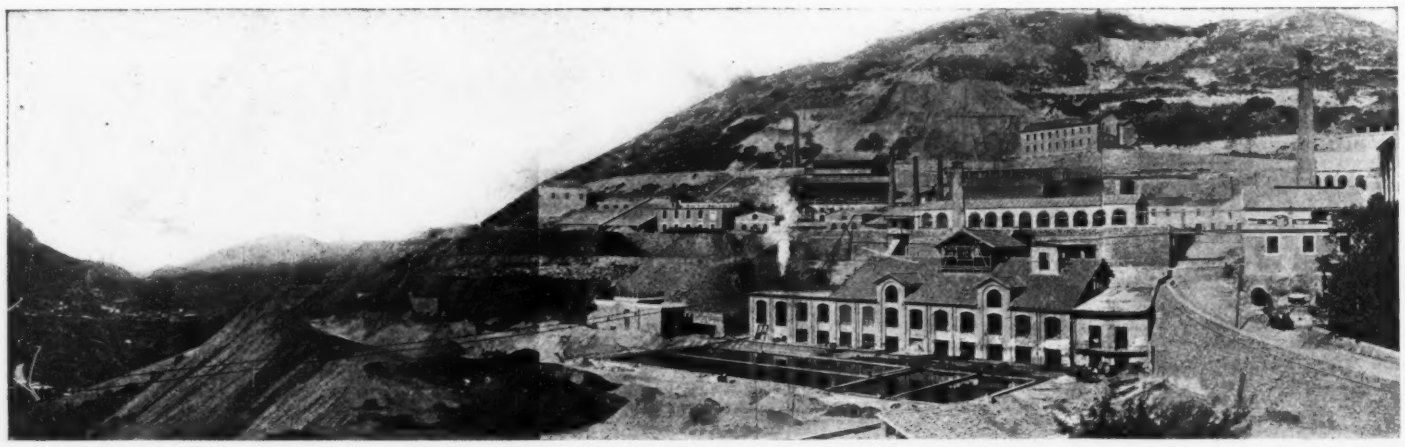
The great majority of the people are Cossacks, large, well-developed men and women of a blonde type. They are pleasant and polite, never quarrelsome or pugnacious, even when very drunk. Veracity is not considered a virtue, nor is mendacity a fault. Petit larceny is very common, but I have heard of no cases of violent robbery. There is a strong prejudice against informing the police concerning misdemeanors. Once,

two men insisted on selling me some stolen gold, and half a dozen men heard them make the offer. It did not seem to occur to them that any one present might inform the police. A favorite way of disposing of stolen gold is through tributors or staratali; it is very easy to slip an ounce of gold into the pan during a clean-up. The mine owner may suspect something wrong, but as he only pays 60 per cent. of the real value, he is not apt to investigate. Should one owner pay his tributors 10 per cent. more than his neighbor is paying, he is apt to receive quite a proportion of his neighbor's product. Tributors usually have no inducement for stealing, as the price paid by the owner is as much as they can expect to receive anywhere.

The people in the Southern Ourals were very hospitable, and in a very plain, unostentatious way. They were always really and truly kind to the foreigner, pitying his lack of taste in not enjoying unlimited libations of tea, yet not offended if he refused to make a martyr of himself by drinking it. In fact, I was constantly being surprised at the many points of similarity in the social life of the Western States and of the Southern Ourals. In both you will find the man who has made himself rich, while his brothers are still holding the plow and stacking grain. The rich brother's daughter may be playing the piano and her cousins washing clothes. The man who drives your wagon may be the mayor of his village, and one of your miners may take a day off to attend to his work as constable. In every village the largest house (except the church) is the school house. Often the thought entered my mind, "This is the most democratic country I ever was in."

THE MONTEPONI MINES IN SARDINIA.

The accompanying illustrations are reproduced from a photograph showing the surface works of the Monteponi Mines in the island of Sardinia. For these photographs and for the following description, we are indebted to the courtesy of Signor Erminio Ferraris, who has been manager of the mines since 1875.



Tramway. Zinc Ore Mill. Lead Ore Mill. Ore Bins. Desilverizing Works.

THE MONTEPONI MINES, SARDINIA.

The mines at Monteponi were first worked in 1829 by the Government of the island, but the operations were on a very small scale. The Societa di Monteponi, organized June 6th, 1850, took the mines under a lease for 30 years and extended the operations. At the expiration of the lease in 1850 the company bought the mines from the Government for 1,150,000 fr. ($220,800); further assuming an obligation to construct a drainage tunnel 4,800 meters in length and to permit the neighboring mines to discharge water from their workings through this tunnel without charge. The capital of the company is 4,800,000 lire (or francs), and its central office is at Turin in Italy.

In the 50 years of its existence the company has taken from the mines 270,000 metric tons of lead ore, with an average tenor of 70 per cent. lead and 360,000 tons of calamine—carbonate and silicate of zinc—having an average tenor of 46 per cent. zinc. In recent years the company has paid dividends of 6 per cent. yearly.

The hill in which the mines are situated rises to a height of 350 m. above sea level. Two shafts, one used for hoisting ore and one for drainage and ventilation, have been sunk. One of these was started on the side of the hills at a point 205 m. and the other 215 m. above sea level, and both are now some meters below that level. The drainage tunnel discharges usually 70 cu. m. of water per minute, on an average of 40,000,000 cu. m. a year.

The lead ore is in the lower part of the mine and at the southern end, as shown in the photograph. The zinc ore is on the upper levels and the mine opening is not seen in the view, being on the opposite slope of the hill. Open workings covering a surface of 6 hectares are located immediately in the rear of the smelting works shown in the engraving. In the mine there are 70 km.—about 43.7 miles—of cross-cuts and galleries, over 20 km. being of sufficient size to permit the use of locomotives.

Ore and other materials are carried from the mines and works by the inclined tramway, partly shown in the engraving. From the end of this tramway there is a railroad of 0.95 m. gauge, worked by locomotives, which extends to the port of Carloforte, from which the ores, metals, etc., produced are shipped by vessel. This railroad was built in 1870-75 and belongs to the Societa di Monteponi. It cost about 2,100,000 fr. On the line of this road are mines of lignite of very good quality—having a heating power of 5,000 calories—which supply fuel for the railroad, the mines and the works.

There are four dressing mills, one used for calamine ores; one for the magnetic separation of zinc-iron ores—zinc-bearing limonites and zinc silicates carrying varying proportions of iron; one for the lead ores, and one for the mixed ores which carry zinc, lead and iron. These four mills together treat on an average 30 tons of raw ore an hour. The largest mill, where the calamine ores are treated—the iron roof of which is seen in the photograph—is able alone to treat 25 tons an hour, when worked to its full capacity.

Surface water is scarce, since the dolomite formation, in which the ores are found, absorbs the rain water which falls. The drainage basin from which the water carried off by the long drain tunnnel is supplied, has an area of 100 sq. km. Over this surface there are few springs, and those are found only in the schistose parts of the formation. A spring having a flow of 3 liters a second supplies water for the mills and for the steam engines used at the mine. By a system of settling basins and reservoirs the water is saved and used over again, so that this quality is sufficient for all requirements.

The reduction works include lead smelting works which treat all the lead ores produced. These works were built in 1894 and have four reverberatory furnaces for roasting the ore, and two rectangular smelting furnaces, each having 8 blast pipes. There is attached to these works a complete plant for refining and desilverizing the lead. About a year ago a zinc smelting furnace was erected which nas been in active operation ever since. It has 180 retorts and treats about 7 tons of calamine a day.

Last year the output of the company was 13,000 metric tons of zinc ore—calamine—3,000 tons of metallic lead and 3,000 kgs. of silver. The number of men employed in the mines and reduction works averages 1,800. Nearly all of these are Sardinians, natives of the island.

MAGNETITE IRON ORE FOR ELECTROLYTIC WORK.—The Ontario Government Assay Office at Belleville, Ont., reports that it has received an inquiry from the Muncie Pulp Company, Muncie, Indiana, for massive magnetic iron ore, running over 65 per cent. in metallic iron and free from silicious or pyritic matter. The magnetite is used in electrolytic decomposition of salts for bleaching purposes in the pulp works. High prices will be paid for iron ore answering requirements.

COAL MINING IN BELGIUM.—The report just issued by the chief mine inspector in the Belgian province of Namur recalls that the coal industry of that province is represented by deposits the chief of which, situated in the Basse-Sambre, constitute a prolongation of the Charleroi Basin, while the others, occurring in the neighborhood of Namur City and Andenne, belong to the lower coal measures. Out of the 37 coal concessions, extending over 12,235 hectares, only 11 were worked last year, having put out 641,360 tons, valued at 6,787,050 fr. The increase in the output, as compared with that of 1898, is 28,960 tons, while the value has advanced by 1,269,250 fr. (£50,770). Calculated from the net production, the mean price per ton was 11.26 fr., showing an advance of 1.64 fr. per ton, or about 17 per cent.

MINE VENTILATION IN BELGIUM.—The London "Colliery Guardian" says that the Guibal fan at pit No. 1 of the Buisson Colliery, Wasmes, near Mons, Belgium, owned by the Societe Anonyme des Mines de Houille du Grand Buisson, has been strengthened and transformed, for delivering a volume of 50 cubic meters per second with high-water gauge, when running at a tip speed of 40 m. per second. The new casing is made of volute form like those of the Capell and Rateau fans; the chimney, considerably increased, is made tangential to the volute; and the exit speed has been calculated for 7 m. per second with the above named tip speed of the revolving portion, while the fan drift has also been enlarged. The wheel, 7 m. in diameter and 1.7 m. wide, has been greatly strengthened to permit it to work at a high speed, and has also been stayed for counteracting the oblique thrust due to the great depression. The fan is driven by belt, with pulley ratio of 2:3, by an engine capable of giving out 200 H. P.; and the normal speed of the latter is 48 revolutions, giving the fan 110 revolutions per minute, under which conditions the volume at the inlet is 32 cubic meters per second, and the water gauge 140 mm. These particulars are contained in an administrative report by M. J. De Jaer, Ingenieur-en-Chef, Directeur des Mines, stationed at Mons.

POCKET MINING IN SOUTHERN OREGON.

Written for the Engineering and Mining Journal by W. I. Fleck.

This class of mining, from the great richness of the deposits and the ease with which they are taken out when once discovered, makes the work an interesting one. These pockets are a species of crystallized quartz, lime and iron decomposed, gold being free. The lower portion is usually in place, while the upper part near the surface forms the lip of the vein and throws off the traces of wire and coarse gold, by which they are found.

This trace of pocket gold is very different from the alluvial placer gold. It differs much from ordinary quartz float gold, being coarse and of a very delicate prismatic structure. It is, in a fact, a perfect miniature quartz mine, a lens-shaped vein of specimen gold quartz, sometimes with two well-defined walls, particularly the foot wall.

This class of mining is often confounded with placer mining, when spoken of in distant places. It is a very high class of shallow quartz mining, and calls for great skill in tracing the pockets: a thorough understanding of the origin, structure, geological formation, contact-precipitation, decomposition, final erosion and surface position of the lode. In every instance where a pocket is found a cross stringer or series of small seams enter the ledge and form a pocket. When they leave the vein the pay decreases.

The main difference between ordinary quartz and pocket mining is that while a quartz mine may be as easily found as a pocket, it takes longer to develop and work out. Pocket mines may be discovered, taken out, crushed by the aid of a hand mortar and panned out all in one day. The pockets found have varied in value from one good pan of dirt to $500,000. The larger ones contained many tons of good milling ore mixed in with the gangue, and sometimes led into a deep continuous quartz mine.

The first great pocket discovered in this district was found on Gold Hill Mountain in 1872. It was located 2 miles east of Gold Hill and south of Rogue River. It contained $350,000 and was all mined out and milled in a few months, leaving very vague traces. The bottom lay in a trough-like cavity, one side a fault and the other cut off by a hard segregated core, this being characteristic of many similar deposits.

Sometimes they occur in series which seem to have some regular relation. One instance, which we have examined, deserves special notice here. The country rock—a soft brown porphyry with occasional bunches of hard iron porphyry cores—is cut by a 10-ft. vertical slate dike, running north and south. This dike cuts through a 2-ft. fissure vein, also vertical, the strike being east and west. The ledge is faulted on the plane of the dike 16 ft. on the surface and 10 ft. on the 200-ft. level, the east part of the vein having moved north on nearly a horizontal line. The two vertical lines, which represent intersections, are cut at frequent intervals by horizontal or slightly inclined fault planes making points on the vertical lines. In the soft porphyry cut by clay seams entering the vein, which is cut off on the bottom or pinched by fault planes, lay the rich pockets. The first one, on the surface, contained $10,000; the last one, taken out on the 200-ft. level, was valued at $2,500. Pockets were taken out all along on the intervening distance. The value seemed to decrease as the vertical lines converged.

The idea among the best pocket miners is that they do not pay as one goes down. One of the most noted pocket hunters in the camp, who has found hundreds, never prospects deeper than 6 or 7 ft., or not much below bed-rock.

The most interesting part of this particular class of mining is the tracing or prospecting of a ridge or slope. When a certain locality is selected, which is usually the lower portion of a smooth mountain slope, hard rock outcrops and gulches being avoided, the prospector selects a pan of surface earth, panning it in the nearest stream. If the locality is a dry one, a rainy day is selected for this work. Should he fail to get a color in the pan, the next sample is taken on a level either to the right or left, or a zigzag course is taken gradually covering the slope from base to summit. When a trace is found which consists of a number of small pieces of wire and fine gold, it is followed up the hill by frequent pannings on or near the surface. The point where it is best and where it begins to disappear are carefully noted, but it is followed up on the surface until the last trace disappears. At this point they go deeper with a very narrow open cut, to bed-rock, or follow the heaviest trace which should lead to the pocket itself, unless some secondary interference has occurred, such as a slip or earth movement. Under these last conditions it is more of a conjecture, as no unbroken trace leads to the pocket.

Should the trace be found in a gulch, it is followed up by panning both sides to where the trace leaves the gulch; it is then followed up the slope. Many blind or hidden ledges are found in this way of prospecting. In hunting for pockets very little quartz is found as a guide, and the ground is worked over very close, as a pocket is easily overlooked by even the most persistent and close observer.

One of the most serious difficulties in tracing is caused by the presence of gold similar in character to pocket gold, but coming from other sources, as small seams in the porphyry which may be diffused over a considerable area. While there are pockets in this formation, the show in the pan, which is the only guide, is blurred by the ever-present colors. Miners call such localities poisoned ground and try to avoid it. An ideal locality is a smooth, regular slope, with a contact or dike outcrop. In such places, if a vein carries any value whatever and is followed to the contact or dike it invariably pockets. This is generally explained by the theory of contact precipitation.

It will not here be appropriate to go over the obscure actions of dynamic geology, but may be necessary to explain the general conditions. This district was probably elevated in the later Cenezoic era, the veins having partly been formed even after the surface had been decomposed, as they contain breccia country rock, in some places completely pulverized, the quartz being granulated and disseminated throughout the vein. The presence of slickensides is evidence of secondary recent mechanical action, which seems to be present in all the better defined deposits.

In the lime porphyry contact zone rich deposits of fine free gold are found incased in yellow ocher or insoluble peroxide of iron lying in a loose, porous condition. This was probably once a calcspar vein formed in the ordinary way, the lime having been since leached out by subterranean waters, leaving the insoluble residue incasing the gold.

We have made assays of this kind of ore containing $4,100 in gold per ton. The gold could hardly be seen without the aid of a pan, and while all was free, it cannot be successfully amalgamated without chemical aid.

In the deeper mines in such localities are found rich carbonates and base sulphide ores, as one would naturally be led to anticipate.

The even paying quartz ledges in this district carry much more silver; the bullion is worth about $12 an ounce. Pocket gold is valued at about $17 an ounce.

The writer is indebted to the Rogue River Mill Company for much information regarding ores, their nature and milling values; also to his associate pocket miners. Much of the exact information was obtained from personal investigations and actual work performed in making many hundred analytical determinations and assays in the district.

The writer believes that when the placer miner shall have cleaned his bed-rock in the gulch and joined with the pocket miner, and together they have burrowed deeper into the hills, the quartz mines will be opened on deeper levels and Eastrn Oregon will be classd as a good mining district.

Mining Shaft. Pump. Smelting Works. Reservoir. Dwellings.

THE MONTEPONI MINES, SARDINIA.

RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal.

DRAWBACK ON COKE EXPORTED.—On the exportation of coke manufactured by the New England Gas and Coke Company, of Boston, Mass., in the manufacture of which was used only slack coal imported from the Dominion of Canada, paying a duty of 15c. per long ton under paragraph 415 of the existing tariff, a drawback will be allowed equal in amount to the duty paid on the imported material so used, less the legal deduction of 1 per cent. The drawback entry must show the number of long tons of coke exported, and must further show, in addition to the usual averments, that the coke was manufactured of the kind and description of coal set forth in the manufacturer's sworn statement, dated November 9th, 1899, transmitted herewith for file in your office. In the liquidation of entries, the rate of drawback which shall be allowed on the coke shall equal 12c. for each long ton (2,240 lbs.) ex-

ported, and for each ton so exported 3,200 lbs. shall be charged against the record of importation. Exported weights must be properly verified by a United States weigher.—Ruling of Treasury Department on application of Collector of Customs at Boston.

DUTY ON "TYPE ASHES."—A question having arisen concerning the classification of, and assessment of duty on, a certain importation of "type ashes," from Canada, an analysis shows that the article contains 56.35 per cent. of lead, 0.53 per cent. of copper, and a trace of zinc. It appears from reports received from the collector of customs and the appraiser at New York that the article is in fact "lead dross."

In view of the foregoing, the merchandise in question should be assessed with duty at 2⅛c. per pound under the specific provision for lead dross in paragraph 182 of the act of July 24th, 1897. It cannot be considered or classified as lead ore.—Ruling of Treasury Department on application of Collector of Customs at Buffalo, N. Y.

THE COST OF CYANIDE MILLING IN THE MERCUR DISTRICT UTAH.

Written for the Engineering and Mining Journal by Wm. Magenau.

It is believed that, as a general thing, too much stress is laid upon the absolute cost of milling as a measure of the efficiency attained at various plants and in the different mining fields. The factor of coincidence in the continued fitness of a given ore to the process adopted for its treatment is so large that too much weight should not be given to a comparison figured down to cents per ton. Even after due allowance has been made for differences in cost of labor, fuel, transportation, etc., the fortuitous adaptability of the ore to the process (presuming the process to be the one best suited to this ore), is as independent of technical skill and economical management as the greater or less richness of the gold-bearing lode. Nevertheless, statements of cost are of great interest and, when properly weighed, of considerable value. Conditions being carefully equalized, the cost of operation of a certain step of a process, as, for instance, precipitation of gold from cyanide solutions, may be accurately compared with that of other methods for attaining the same end, leading to the adoption of the best and cheapest.

As a matter of more general interest, we present the cases of minimum costs, as showing to what extent natural conditions approximate the ideal. In cyaniding, the latter would probably be considered realized in a deposit which could be leached "in situ," with a consumption of cyanide equal to the proportion combined with dissolved gold, and an efficiency of precipitation equally fanciful. So far as known to the writer, the conditions prevailing at Mercur, Utah, while not identical with the above by a good deal, still afford the nearest approximation we have.

The record there made of the lowest absolute expenditure per ton for the direct extraction of gold by cyaniding is in large measure due to a chance combination of circumstances which makes possible excellent results even to those who are quite unskilled and proceed in a blundering fashion.

In the analysis which follows, a general idea is given of prevailing prices for labor and supplies and of actual working costs, which latter are extracted from official reports and personal memoranda, the figures being in some part approximate or average, but, it is believed, substantially accurate. In the case taken, the plant of the Geyser-Marion Gold Mining Company treated only oxidized ore, such as constitutes probably three-fourths of the material milled in the district; the remaining fourth being base (arsenical), is roasted before leaching and of course costs more to mill.

In the year 1899 (during most of which the writer was in charge) the Geyser-Marion mill treated 43,271 tons of ore. The cost of milling is given in the company's annual report at 67c. per ton. Total cost of mining came to $1.43 per ton. The former figure establishes a record in the district. The Mercur Gold Mining and Milling Company, operating on precisely similar material, reports a cost of 68c. per ton for milling 128,804 tons in 1899. This is exclusive of a royalty of 5c. per ton. At the same mine, cost of mining is $1.16 and of a 6-mile railroad haul 35c. per ton.

Below is given a classification of milling expenditures during one month's run at the Geyser-Marion under the writer's direction. The cost per ton for the 4,000 tons put through comes to but 50c., the items of construction, improvements and general salaries which enter into the average figure for the whole year being here eliminated:

Ruling Prices.

Labor.—Everything by 8-hour shifts (controlled by State law).	
Miners, laborers, mill hands, etc.	$2.50
Engine tenders, blacksmiths, carpenters, etc.	3.00
Supplies.	
Coal (Rock Springs slack), per ton, delivered	$5.00
Lumber, per 1,000 ft., delivered	20.00
Water, sold by meter, per gallon	0.00¼
Quicklime, per bushel	0.40
Cyanide of potassium, per pound delivered	0.30
Zinc, per pound delivered	0.12

Costs of One Month's Run (4,000 tons).

	Total.	Cts. per ton.
Labor (see note a)	$518.00	12.9
Proportion of assayer's salary	75.00	1.9
Cyanide, 2,000 lbs. at 30 cts	600.00	15.0
Zinc, 1,000 lbs. at 9 cts	90.00	2.2
Discharging tailings (see note b)	400.00	10.0
Lime, 15 bushels at 40 cts	6.00	0.2
Coal, 40 tons at $5.00	200.00	5.0
Oil, repairs and incidentals	111.00	2.8
	$2,000.00	50.0

Note a.—The labor employed in the mill was distributed as follows: 1 engine tender, 1 car man (for charging tanks), 1 crusher man, 3 solution tenders (one for each 8-hour shift).

Note b.—Tailings were discharged by shoveling through holes in tank bottoms into cars underneath, this work being let out by contract. Properly, therefore, this item should be added to labor.

As will be seen from the quantities given, the consumption of cyanide was 0.5 lb. per ton of ore, and the consumption of zinc (which includes that shipped to the smelting works in the shape of product) was 0.25 lb. per ton, equivalent in this case to 2.2 lbs. zinc per ounce of gold recovered.

The following brief outline of the leading features of the milling practice here followed will explain how such low costs are possible. The ore being essentially sedimentary shales and clays with bunches of harder limestone, efficient crushing is accomplished in gyratory crushers two being in use—a rougher and a finisher. In other mills ordinary roughing rolls are used for finishing. The single rotary screen necessary is of 1-in. mesh, that is, distance from center to center of wires is 1 in. The screen discharges into a bin from which ore is drawn into iron cars, trammed to the adjacent leaching tanks on trestles built over them, and dumped. All the crushing (130 tons per day) is done in one or sometimes 1½ shifts. The charge is leached from 60 to 120 hours with one strength of solution, and the gold is precipitated on zinc shavings. Clean-ups are made semi-monthly, and the product after steam-drying is shipped to the smelters for treatment, the latter buying the material outright on sample and assay and paying $20 per ounce for the gold. It may here be interesting to note the cost of this method of disposing of product as compared to the more usual means of local refining and sale of the fine bullion to the mint.

Such a comparison should be based on cost per ounce of gold recovered, but even this may be misleading, through such erroneous assumptions, for instance, as the same cost for refining a pound of a very low-grade product as an equal quantity of one rich in gold. In Mercur, the material obtained in the clean-up is unavoidably poor, averaging about 6 per cent. gold (almost no silver). The difficulties of refining this material have been elsewhere pointed out by the writer. Likewise the entire practicability of obtaining satisfactory samples and assays as a basis for settlement. The cost, then, to a company thus disposing of its product is the difference between mint price for fine gold ($20.67) and the smelter price ($20) plus the express charges, amounting to 12c. per ounce of gold on product of average grade.

This makes a total of 79c. per ounce of gold, as against the many items of expense connected with local refining, in which case transportation charges on the refined bullion must also be paid, besides an extra mint charge should it be impure; and besides this, the many risks and inconveniences attendant upon reducing the rich material. These remarks apply particularly to the smaller plants and to low-grade products; there is no doubt that local refining saves money for the larger establishments, and the largest plants in Mercur are so equipped.

There are no figures at hand for costs of local refining under anything approaching analogous conditions, and such would be of interest. On the whole, it seems likely that in many cases where buyers are conveniently near and transportation not too expensive, outside refining should be preferable.

RAILROADS IN GREECE.—There are now about 600 miles of railroad in Greece, operated by four companies. The longest line connects Athens with Pyrgos and Olympia, on the Ionian Sea. It is said that an Anglo-French syndicate has taken up the old project of building a railroad from the Piraeus to Larissa, in the extreme north of continental Greece, and from there connecting with the Turkish railway system. The line would be 212 miles long, and would connect Athens by rail with Europe.

SELENIDES OF IRON.—In a recent note to the Academie des Sciences in Paris, M. Fonzes-Diacon said that the selenides of iron resist the action of hydrochloric acid in proportion to the amount of selenium they contain. Fuming nitric acid transforms them into selenites. Chlorine replaces the selenium without difficulty. When these compounds are roasted in a current of oxygen selenious anhydride passes off in vapor, leaving a residue of red oxide of iron. Five compounds of iron and selenium are known, corresponding to the iron sulphides.

NORTH SEA-BALTIC CANAL.—In the fifth working year of the North Sea and Baltic Canal—April 1st, 1899, to March 31st, 1900—the number of vessels using that waterway was 26,279, representing a total of 3,488,767 register tons net, against 25,816 ships and 3,117,840 tons in the previous working year. The German flag covered 22,359 vessels, the Belgian flag 20, British 549, Danish 1.038, French 8, Dutch 855, Norwegian 250, Russian 200, Swedish 973, and 27 hoisted other flags. The net amount collected as canal dues during the year was 1,672,771 marks, and the other fees amounted to 1,809,951 marks, or altogether, 3,482,722 marks.

SHIP-BUILDING IN THE UNITED STATES.—The Cleveland "Marine Review," analyzing the report of the Bureau of Navigation for the fiscal year ending June 30th, 1900, says that the vessels built in the United States and officially numbered during the year aggregate 381,863 tons. This record was surpassed in 1874, when 432,725 gross tons were built in the United States and documented. Of the new vessels built during the year, 483 of 213,052 gross tons are steam vessels, 575 of 92,625 gross tons are sail vessels, including barges with sail power, and 76,186 tons are barges and a few canal boats for Canadian trade without power of self-propulsion. The large proportion of steam vessels, 56 per cent. of the total, makes this year's addition to the fleet, in value and in carrying power, superior to the additions in 1874, or of any other year in our history. The most important additions of the year have been the large steel vessels built for the trade of the great lakes. Of the 1,058 steam and sail vessels of 305,677 gross tons built and numbered during the year, 98 of 185,434 tons were steel, 957 of 119,355 tons were wood, and 3 of 888 tons were iron. The proportion of steel construction is thus much the greatest in our history. This result is attributable also to the great lakes construction, where of a total of 99,776 gross tons, 95,015 tons, 25 vessels, were steel steam vessels. The numbered construction on the Atlantic seaboard comprised 715 vessels of 160,576 tons, of which 76,344 tons were wood. Numbered construction on the Pacific comprised 37,386 gross tons, and on the Mississippi, Ohio and western rivers 131 vessels of 7,939 tons.

THE GOLD ZONE OF COPALIQUIN, MEXICO.—III.
SUPPLEMENTARY NOTES.*

Written for the Engineering and Mining Journal by Frank B. Fowler.

The mining camps in this zone that have attained prominence, in addition to those described, are San Luis Gonzaga, San Jose Ledesma, San Jose de Gracia and Guadalupe y Calvo. This last mentioned camp was established in 1835; five years later a Federal mint was in operation there, and the present scanty supply of gold coin in the Mexican currency includes the ounce piece struck at this mint. Much of the material of the present mint in Culiacan saw service in Guadalupe. From mint records alone this camp has produced $75,000,000 gold, not counting stolen ore and losses in reduction.

La Soledad Mine in Copalquin, owned, as before stated, by Sr. Remedios de la Rocha, has been in bonanza for the last 10 years, though not in constant operation during this time. It has produced as high as $500,000 gold per annum, at an expense of about $25,000. Such a result is possible only where ore is rich and abundant, and in a country where labor is cheap, as here. The mine is worked very quietly, without ostentation. The owner has refused $1,500,000 for it, and apparently is not very anxious to sell.

Leaving Copalquin for Topia, the political center of the District of Tamazula, wherein lies the Durango portion of this zone, one ascends amid sublime (and dangerous) scenery to an attitude of 8,100 ft., where a glimpse of the sea is obtained. Then descending, the Hacienda of Don Remedios de la Rocha, named "El Durazno" (the peach), is reached, some 35 miles from Copalquin by the trail, at an altitude of 7,500 ft. Near here is another gold mine (silver and gold) owned by Mr. Rocha, San Ignacio by name.

This mine has been a famous producer, and is still productive, although at greater expense naturally, going deeper. For this mine the owner asks $750,000. He is now putting machinery in place, 10 stamps, pan amalgamation, although the ore is excellent for concentration also. The ore has heretofore been reduced in arrastras run by horizontal water-wheels.

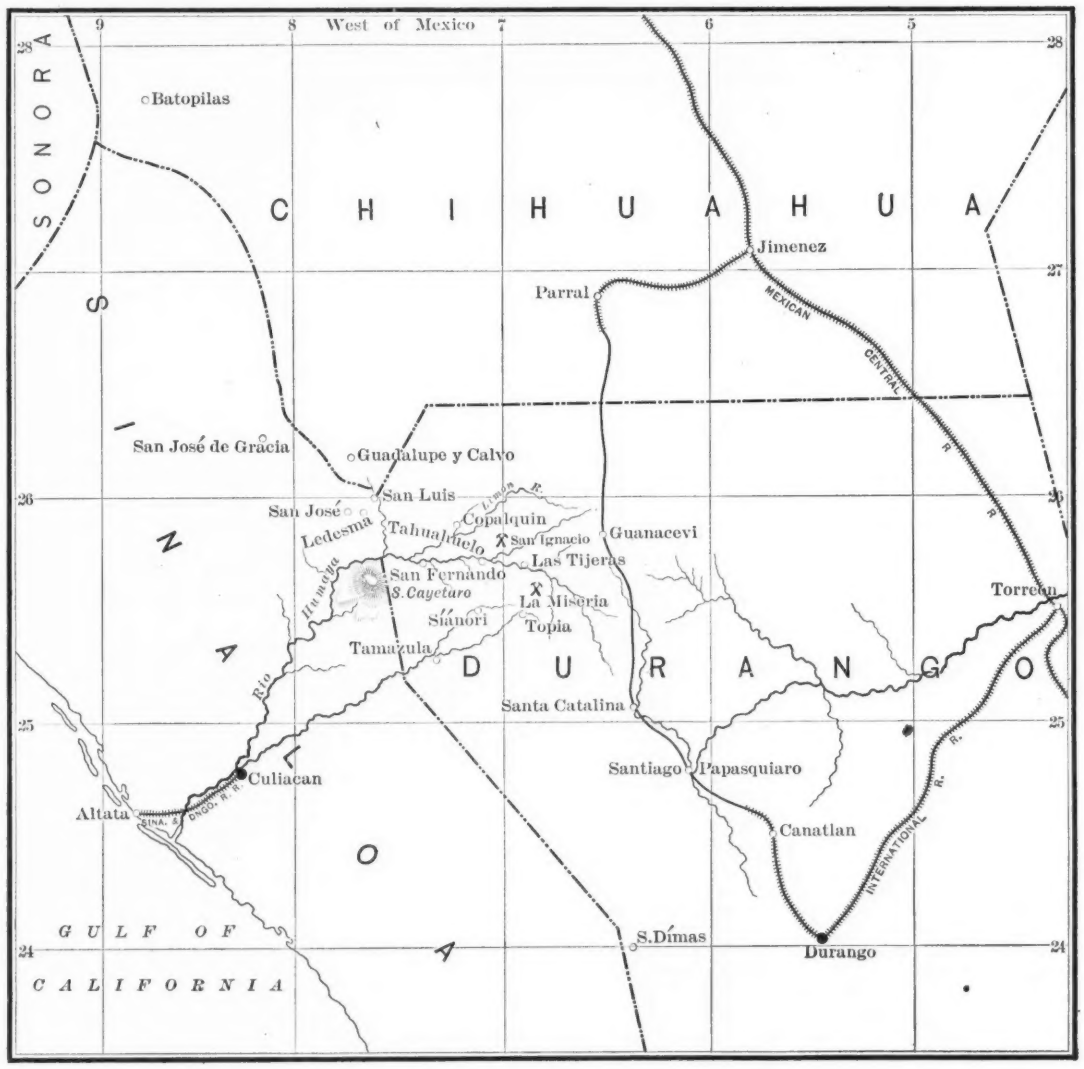
This point may be taken as lying in the eastern limit of the Copalquin Gold Zone proper, for here commences the gradual merging of its geological features into those of Guanacevi, quite distinct.

From San Ignacio the trail drops down to the River Humaya again, a long day's ride, at a point near "Las Tijeras" (the scissors), at an elevation of 1,900 ft. The river here bears locally the name Tahuahueto, that of an Indian village farther down stream. At this village, and all up and down the river, and in the contributing arroyos, placer gold is found; and the natives, who neither crave riches nor love too much exertion, easily secure their modest necessaries with the crude batea.

Las Tijeras is another gold and silver mine having some local fame. Its owners, having little capital, have not been able to develop the property sufficiently to attract outside capital and have confined themselves to the rich pockets. Of course these cannot be relied upon as a basis of the probable value of the ore in the mine or in sight, and until some systematic exploitation is accomplished, the mine will continue to be classed as a prospect.

From Las Tijeras the ascent of the slopes south of the river begins, reaching La Huerta (the orchard) in 3 hours, altitude 4,900 ft., a little camp with ores of silver and gold. From La Huerta to Topia, 6 hours, through a forest of pines, reaching the divide at the 7,800-ft. level, leaving the immense gold-bearing dike of La Miseria (misery) to the left, then with a slight decline to 6,650 ft., then a tumble down into the amphitheater of Topia, 5,500 ft. altitude.

It was here, near La Huerta, that some 10,000 logs were cut for San Fernando in 1897-98, to be dropped into the river by natural chutes, thence floated to their destination, when the State intervened, claiming the land as part of the Public Domain, fined the person claiming to be the owner $5 per tree cut, thus instituting litigation and causing the San Fernando Company to seek for timber elsewhere. The claimant has finally proved his right, but the logs are rotting and without a market. To say the least, it seems queer that the Government had collected taxes on this land for more than 100 years and never discovered that it was public land until these logs were cut and ready for delivery.



MAP SHOWING COPALQUIN DISTRICT, MEXICO.

In the accompanying sketch will be noticed the mountain peak of San Cayetano, near San Fernando. This peak was located from the coast by the United States Coast Survey, and is found on its maps, thus furnishing a very accurate means of determining the latitude and longitude of San Fernando, which camp is now in full operation. The mill at Copalquin (village of Limon) is being rapidly pushed to completion, the main difficulty being lack of hands, though regular wages are paid, and paid in cash—no boletos.

Accuracy is not claimed for this sketch, since there exists no officially authorized map of Durango; but it is relatively correct and gives a tolerable idea of the position and extent of this zone.

In Mr. Buelna's admirable report reference is made to the advisability of constructing a wagon road from Guanacevi to Copalquin.

*See "Engineering and Mining Journal," February 24th, 1900, page 225, and May 12th, 1900, page 557.

This report was written before San Fernando was dreamed of, and when the locomotive stopped appalled at the base of that mighty barrier—the Sierra Madre—between the East and the West. But the increasing activity in all the branches of industry throughout the Republic has demanded better facilities for oriental-occidental communication and traffic. Three companies have concessions in the State of Chihuahua, and two in Durango, for a route to the Pacific Coast. From Parral in Chihuahua and Durango in the State of Durango, two lines are in construction for Guanacevi. La Internacional Company of Durango has a concession to build to Culiacan, and another company to Mazatlan. Engineer corps of the two companies have been and are in the field, but as yet no one, perhaps excepting the parties interested, knows what route these lines will take. The concession to the Internacional (C. P. Huntington) is not obligatory as to construction, but to the other company it is, under penalty of fine and forfeiture of subsidy and concession.

From an examination of the map it is evident that the easiest route for Mr. Huntington's company is by the Humaya River, the most difficult portion being between Santa Catalina and the headwaters of this stream, which, with a little judicious tunneling, opposes no insuperable obstacles. In the valley of the Humaya all the distance needed in railroad construction can be more readily gained than by any other route.

Should the road pass that way, then the Zone of Copalquin will be in touch with the rest of the world, and its unknown possibilities developed. It is not a Klondike, nor is the claim made that it is in particular remarkable, save in its comparative isolation and the small number of developed properties. The latter peculiarity can be easily explained; it is a result of the vicious "Zone Law" that has obtained up to the past year. This law allowed anyone to apply for permission to explore a zone (limited in extent) for a period of 3 months, usually granted when not interfering with third parties, and all costing only $1. During this time no other person could prospect or locate claims within said zone without permission of the holder. The law also debarred the holder of a zone from again soliciting the same zone at the expiration of the 3 months, but this was evaded by having a relative, a friend or a man of straw perform the kindly office for him, costing only another dollar for another 3 months, and so on.

In consequence, this region was kept continually plastered with "zones,' 'thus effectually keeping out the prospector and miner with small capital, who are always, or nearly always, the pioneers of all great mining enterprises. Last year this law was modified so that now, at the expiration of the life of a "zone" concession (3 months), no one can resolicit the same, or any part of the same, until 6 months have elapsed, during which time the ground is open to prospectors and locators of claims.

Since writing the foregoing, the San Fernando Company has entered anew into a contract with the owner of the logs, where the land was in dispute, for timber supply during the next 6 years. The sound logs already cut are being dropped down to the river, to await the first freshet of the rainy season, usually commencing here during the last days of June.

GERMAN IRON PRODUCTION.—The output of the German blast furnaces in May was 714,312 tons of pig iron, being 34,153 tons more than in April, and 35,746 tons more than in May, 1899. For the five months ending May 31st the output was: Foundry iron, 617,113; forge irons, 657,853; Bessemer pig, 193,669; Thomas (basic) pig, 1,899,705; total, 3,368,340 metric tons. The total for the five months in 1899 was 3,337,009 tons, showing an increase of 31,331 tons, or 0.9 per cent., this year.

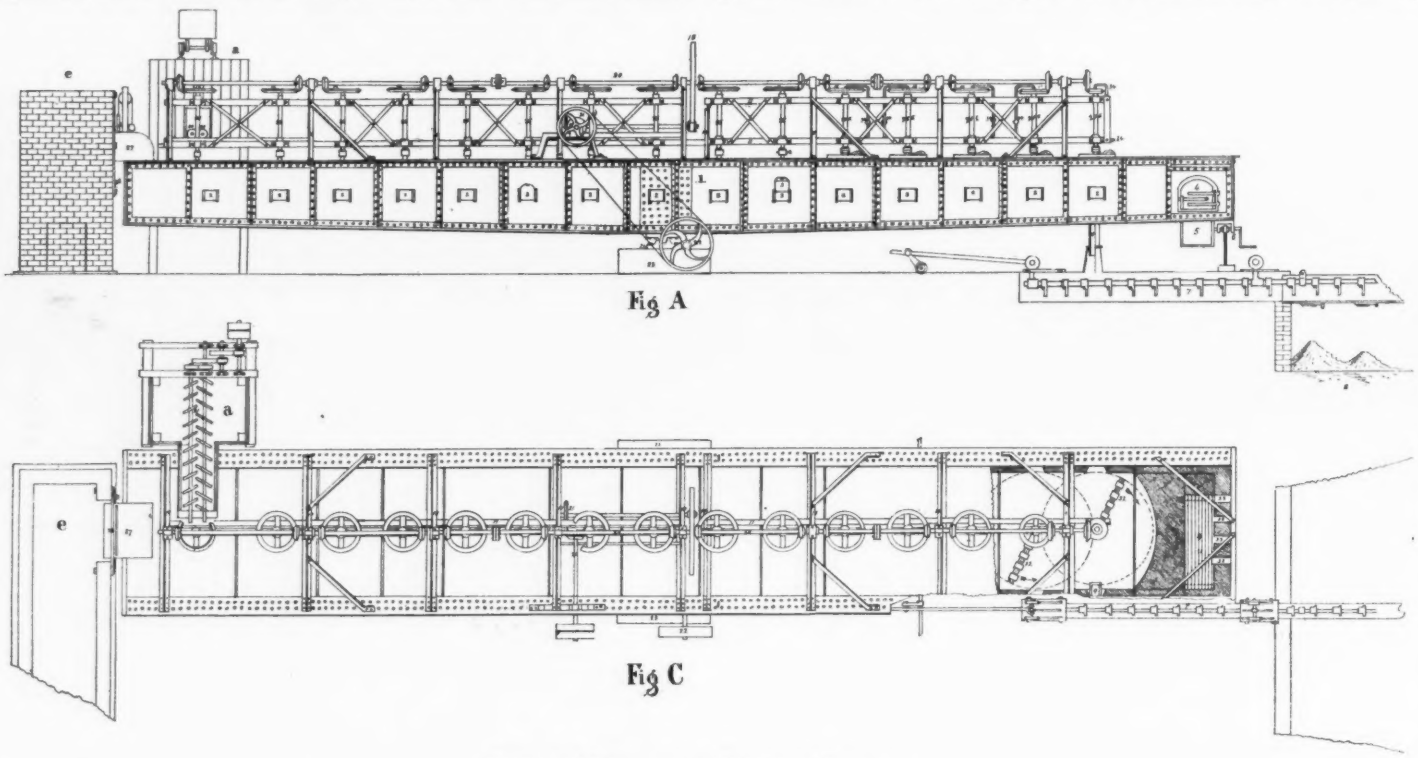
THE EDWARDS MECHANICAL ORE ROASTING FURNACE.

The Edwards Pyrites Smelting and Ore Reduction Company runs two customs works in Victoria, Australia, one situated at Ballarat and the other at Bendigo. From these places and the surrounding districts they receive large quantities of sulphide ores for treatment. The ores from the different districts vary very much in their composition and quality. At Ballarat the ore is chiefly arsenical pyrites, the lodes also carrying a small percentage of iron pyrites and galena. It is concentrated up to about 88 per cent. sulphides. The gangue is generally quartz with a little calcite. The present average value of gold per ton is 2.5 oz.

In the Bendigo District iron pyrites predominate, associated with a little arsenical pyrites, galena and blende, and the ore is concentrated up to 80 per cent. of sulphides. The gangue is quartz with a little calcite. The average gold contents of concentrates is 1 oz. 14 dwts. per ton. From the Avoca District the sulphides are a mixture of iron and arsenical pyrites, with, in some cases, 15 per cent. of galena, 5 per cent. blende and 1 per cent. copper. Its average contents are 2.6 oz. gold and 6 oz. silver to the ton.

Again in the Wodonga District antimonial ore predominates. The concentrates generally carry 16 per cent. of antimony with a little copper. The gangue is mostly quartz. Average gold contents 2.95 oz. per ton. The concentrates from the St. Arnaud District are a mixture of arsenical and iron pyrites with about 8 per cent. of galena, 4.5 per cent. of zinc blende, and about 0.5 per cent. copper; average gold contents 4.15 oz. per ton, also about 50 oz. silver. And so the variations go on, each district having its own peculiarity.

The refractory nature of these ores require careful and sometimes special treatment. The roasting of them in hand-worked reverberatory furnaces was found to be extremely slow and costly, and at times the discharged ore gave very unsatisfactory results, owing perhaps to the inattention of the roasters. In consequence of this the company decided to erect a mechanical furnace if one suited to the requirements of the ore could be obtained. The Edwards furnace was adopted in preference to others which had been tried. One was first erected by the company, and having been found suitable, three others were erected at the works, and are giving entire satisfaction.



EDWARDS' MECHANICAL ROASTING FURNACE.

The furnace is so constructed as to permit the workman to have absolute control of the roasting operation without any physical effort on his part. The result is that the roasted ore is discharged from the furnace in a perfectly sweet condition, and a high percentage gold extraction is obtained with the least possible consumption of chemicals.

It is a mechanical furnace and is made of iron lined with brick. It is inexpensive to construct, yet will last a number of years, and it consumes less than one-third of the fuel that the hand-worked reverberatory furnace requires to roast the same amount of ore. The grade of the furnace may be altered to suit all classes of ore or to prevent it being discharged if not properly roasted. The output varies with the quantity of sulphur or arsenic contained in the ore, but ordinarily ranges from 50 to 120 tons per week from each furnace.

The ore is automatically fed into the furnaces and the roasted ore is similarly conveyed to the cooling shed, so that the labor is reduced to a minimum. One man per shift is attending to four of these furnaces at the Tasmania Gold Mining Company's plant at Beaconsfield, Tasmania. He does all the firing and bestows ample attention on all the requirements of each furnace.

This furnace was specially designed for roasting highly concentrated refractory ores, as will be noticed by the motion of the rabbles, 32, in the drawing, the slowest of which makes one revolution per minute; they travel in opposite directions, cutting each other's circles, thus pushing the roasting ore forward and backward. At the same time

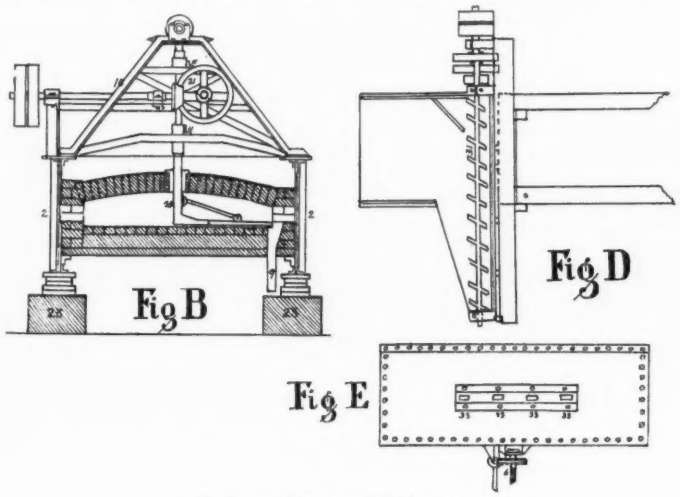
it takes a zig-zag course, crossing and recrossing the furnace toward the discharge end, and can be hastened or checked by either raising or lowering the discharge end by means of the screw, the pitch of which is two threads to the inch. The furnace is so balanced that the workman can run it up and down with the greatest celerity and freedom.

The condition of the interior of the furnace and the roasting of the ore can be seen through the openings, 2, on either side of the furnace. The attendant, after a few shifts on the furnace, becomes so expert that he can positively tell whether the ore previous to being discharged has been roasted sweet, and therefore should any ore be discharged unroasted it would be outright continuous and flagrant neglect of the attendant.

At the Bendigo Works the furnace is fired with wood; at Ballarat the furnace is heated with producer gas, which is very convenient, as it is so arranged that if ore containing but little sulphur is under treatment the heat of the furnace can be regulated in all parts by applying the gas through any of the holes, 2, along the sides. Any suitable coal may be used as fuel, if convenient.

In the accompanying drawing Fig. A is an elevation showing one of the girders, 1, with sight holes, 2, and sliding door, 3, fire door, 4, ash-box, 5, and elevating gear, 6. This alters the grade of the furnace and regulates the discharge, while the rabbles travel at their usual speed. Discharge pipe, 9, is secured to the girder of the furnace at the lower end; it passes and works in a case to prevent escape of dust. The ore drops down to conveyor, 7, consisting of a series of flaps hinged to disks which are fitted to a hydraulic pipe and the whole supported on wheels. All slots or openings other than where the discharge occurs are closed dust tight. The cooling floor, 8, has frames which are made of 3 by 3 by ½-in. angle iron, 10, rails made of 4 by 4 by ⅜-in. angle iron, 11, with 2 by ½-in. braces attached.

Bevel cogwheels, 12, 13, 14 and 15, increase the speed of this rabble two revolutions to one of the former; 16 and 17 increase the speed of this rabble two revolutions of one of 14 and 15, or in other words the



EDWARDS' ROASTING FURNACE.

rabbles driven by 16 and 17 will revolve 4 times to 1 of those driven by 12 and 13. In the drawing again 18 and 19 are a pair of spur cogwheels; 20 is shafting, 21 intermediate gear, 22 main shafting with pulley; 23 is the concrete foundation, 24 the pivot on which the furnace moves; 25 are 2½-in. spindles with sockets into which are secured the rabbles by a pin passing through the socket and end of the rabble, as in cross-section of the furnace. At 25 E are 3⅛-in. cast-iron hollow spindles having a flange at the bottom end; the rabbles, which are also hollow, have a flange at the top end and are secured by bolts to the spindles. To keep these rabbles cool, as they are in the hottest part of the furnace, water is introduced through the spindle into the foot of the rabble, escaping under the flange of the rabbles into a circular pan, whence it is carried away from the furnace through pipes provided for the purpose.

At 27 is the short flue attached to the furnace which enters the main flue, e, leading to the chimney; 28 is a sliding cover plate which moves in grooves fixed to flue, e, and with the furnace to prevent cold air passing into main flue, e. At 30 are ends of ore feeders; 31 is the damper; 34 are water pipes leading to water rabbles.

Fig. B is a cross-section of the furnace showing sight holes, 2, 2, intermediate gear with frame, and rabble, 26, passed through and enclosed in a cast-iron box 14 in. long, built in the roof of the furnace so that the rabble can be withdrawn and changed in a few minutes; also brickwork and discharge pipe, 9, pivots and foundations.

Fig. C is a plan of furnace showing the brickwork partly in section with the discharge hole, 9, and water rabbles, 32, the fireplace, 4, and end air holes, 33; also plan of hopper, A, with the feed gear, 31. The feed gear consists of two screws side by side, each 7 in. across. This form of feeder is good for damp sand, as it cuts a wide hole, the roof curving down instead of being arched, as with one screw. C is the flue.

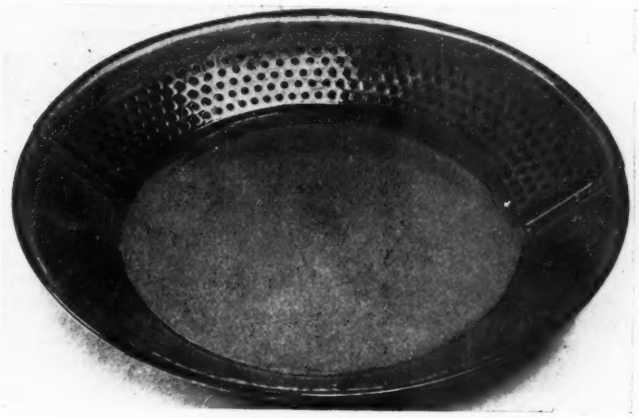
Fig. E is a fire-end elevation of furnace showing air holes. There are two kinds of rabbles in use, one as shown in Fig. B, at the feed end having a flat foot that passes under the ore, which rolls over the rabble, causing it to be perfectly stirred, while the foot of the rabble is protected from the air and not so subject to injury by the various gases. The other kind, a water rabble, 32, is shown in the plan, and is used at the hot end of the furnace. The rabble as already mentioned has a hollow foot and this foot is so constructed that cast-iron teeth are slipped over it and can be changed at will without letting the fire go down. The flat foot rabbles are very durable; one is still going in the first furnace erected nearly 4 years ago. The water rabble will also last for years, and the cast teeth last on an average more than 12 months; these can be easily replaced by new ones. The cost of rabbles is not so much in this furnace as the cost in rabbles for roasting the same amount in the hand-worked furnace.

The iron work consists of two girders made of ¼-in. iron for web, top flange 12 by ⅜ in., put on to web with double angle iron 3 by 3 by ⅜ in. The bottom flange is 12 by ½ in. put on with double angle iron 3 by 3 by ½ in., with ends of ¼-in. iron riveted to 2½ by 2½ by ½-in. angle iron. The bottom flanges support the No. 14 corrugated weight bearing iron; this forms the bottom of the furnace, on which the brickwork is placed as in cross-section B. The girders are 4 ft. 1 in. high. All the ironwork, including a set of firebars, weighs 17½ tons.

The furnace is fitted together before leaving the foundry. The girders are each made in three sections, and are so fitted before leaving the maker that any handy man can put them together and set up the furnace in its required position. The heaviest portion of any part of the furnace is 2,600 lbs.

The Tasmania Company with three men could not possibly roast more than 20 tons per week of concentrates suitable for chlorination by the hand-worked furnace. Four Edwards furnaces are roasting 200 tons per week, requiring three men at £2 5s. per week = £5 15s. or 8d. per ton. This represents the labor question, which is of vital importance when operating on low-grade ores, particularly in a locality where wages are high. The consumption of fuel must also be considered, especially in districts where wood and coal are dear. No more fuel can be consumed in this furnace in a run of 24 hours than is usually burned in a hand-worked furnace, as the heat is governed in each furnace by the same conditions. The sulphur acts as fuel for the first half (more often for two-thirds) of its length, when the ore is no longer heat sustaining, but is then being brought gradually under the influence of the fire with the furnace at a bright red heat where the various sulphates are gradually oxidized. The fuel used in each case is about the same to keep the bottom end of the furnaces hot. If the hand-worked furnace roasts 20 tons of ore with 12 tons of fuel, the mechanical furnace will roast 50 tons with the same amount; a difference in favor of the mechanical furnace depending on the cost of fuel.

Not the least advantage is the uniformity of the roasted product. In erecting this furnace the brickwork is provided by the purchaser. It takes 9,000 bricks to line one furnace, all common red brick except a few around the fireplace. Any ordinary bricklayer can put in the brick lining.



TOBIN'S PAN FOR PROSPECTORS.

TOBIN'S "NEW HIT" GOLD PAN.

The accompanying illustration shows a pan for the use of prospectors and others, devised and patented by Mr. John Tobin, a prospector of much experience, and made for him by George N. Joyce of New York. The device, as will be seen from the engraving, is a simple one, the improvement consisting in the addition to the ordinary pan of a strip of perforated metal forming a pocket on one side. In use it is found that the gold or other heavy material will work into this pocket and be retained there, while the lighter sand and tailings will wash out through the perforations. Pebbles or gravel too large to enter the pocket will be carried over the edge. This pan was used by the inventor in the Nome District last season with much success. Its uses and merits will be evident to prospectors and others who have had occasion to pan for gold.

BELGIAN DEMAND FOR COAL.—United States Consul Brundage writes from Aix la Chapelle, May 30th, 1900: "I have had an interview with Henri Coopman, coal dealer of Verviers, Belgium, who purchases annually 200,000 tons of coal, and bought to-day at mines in this district 10,000 tons at 160 marks ($38.08) per car of 10 tons f. o. b. cars at mines. He expressed an urgent desire to be informed of prices and ability to deliver American coal at Antwerp, Belgium."

GERMAN DEMAND FOR COAL.—United States Consul Harris, of Mannheim, Germany, under date of May 19th, 1900, says: "I am receiving frequent requests from local coal dealers and manufacturers for prices of American coal on board ship at Rotterdam. These inquiries are from responsible parties and relate both to anthracite and bituminous coal. The people in this consular district are watching with intense interest the introduction of American coal. All prices for this market should be quoted f. o. b. Rotterdam. I have promised to ascertain approximate prices for parties here and shall be greatly obliged for information touching the matter, with names of shippers from most available point for this market."

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like will be reproduced whenever possible. Specimens should be of moderate size and should be sent prepaid. We cannot undertake to return them. If analyses are wanted we will turn specimens over to a competent assayer, should our correspondent instruct us to do so and send the necessary money.—Editor E. & M. J.)

173.—Specimens from Kentucky Zinc Fields.—W. S. L.—No. 1 is mostly limonite, the hydrous sesquioxide of iron, mingled with a small be a little hematite. No. 2 is a limestone, calcium carbonate, with a small amount of impurities. No. 3 is a crystalline limestone or marble, the brown color being due to oxide of iron. The small dark brown crystals in No. 4 are smoky quartz. No. 5 is an earthy limonite. Its peculiarities of form and texture indicate a replacement product; perhaps it was once a fossil in a limestone formation.

174.—Mica-diorite.—A. E.—The much decomposed rock you send may have been a mica-diorite. The feldspar has changed to kaolin. The shining flakes are not pyrite, but biotite mica. In such a decomposed rock pyrites would probably be changed to iron and copper oxides.

175.—Asbestos.—M. I. E.—Good asbestos has separable fibers, and the value of the rock depends on the length of these fibers. Your samples, as before noted, are almost without fiber. They might be ground and used for a variety of purposes, but the refuse from the high-grade mines furnishes plenty of such poor material. Your specimen is hardly commercial asbestos at all. Similar material is found at many points in the South. It has also been found in New Jersey and in the Pacific States. We doubt very much if you can find any market for it in New York City; certainly not at prices that would leave any profit for a vein in South Carolina. The chief dealers in asbestos in this country have headquarters in New York City.

176.—Maltha.—W. P.—We know of no particular market for maltha in the Eastern States. The substance might be used for a variety of purposes, as a flux for asphalt, a base for varnishes and lacquers, etc. Unfortunately, petroleum residuum, which can be had very cheaply, answers all purposes as a flux for asphalt, while the suitability of your material for varnishes, etc., can only be determined by experiment. If it is suitable you should have no difficulty in finding a sale for your product, though much would depend on costs.

177.—Bitumen.—H. M. S.—The black substance you send is probably asphaltum, though its appearance is rather unusual. We cannot undertake to determine the market value of your sample by appearances, and a thorough chemical test is necessary. The asphaltum minerals have wide variations in price. We quote Trinidad refined asphaltum at $30@$35 per short ton, and crude Egyptian asphaltum at 5½c. per pound, at New York.

178.—Anglesite and Phosgenite.—A correspondent writes: "The mines of Monteponi in the Island of Sardinia are noted for the very fine specimens of anglesite and phosgenite which are found in them from time to time. These specimens are in demand by collectors in all parts of Europe."

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Prices per Unit.—I frequently see ores—such as manganese ores and the like—quoted at so much per unit. Will you please explain what is the meaning of such quotations?—E. W.

Answer.—The commercial quotation per unit is understood to mean the price per ton of ore or mineral for each 1 per cent., or one-hundredth, of the element which gives it its value. Thus, if the price of manganese ore is given at 20 cents per unit, and the ore contains 45 per cent. manganese, the price would be $9 per ton. If iron ore were sold in this way at a price, say, of 10 cents per unit, a 60 per cent. ore would be valued at $6, a 50 per cent. ore at $5, and so on. It is frequently used for ores as a convenient way of determining the value, and is generally understood in the trades where it is applied. Besides ores, it is used to some extent for fertilizing and other chemicals.

Ball Mills.—Can you tell me of any case where a ball mill has been substituted for a stamp mill, and with what results? For what purposes is the ball mill best adapted? —J. L. J.

Answer.—Prof. Richards—"The Mineral Industry," Volume VIII—says: "In preparing pulp for the amalgamating pans, the Jenisch ball mill, which is similar to the Gruson mill, has replaced stamps in the mill of the Commonwealth Mining & Milling Company, of Pearce, Ariz. A No. 5 mill using 12 H. P. is said to crush 23 tons in 24 hours through a 40-mesh screen. The pulp is said to be much more uniform than that from a stamp mill. Generally speaking, this class of ball mills—like the Gruson, Jenisch, Dodge or Justin Mills—is especially adapted to crushing gold ores where the sliming of tellurides is to be avoided, where the pulp is to be treated by one of the leaching processes, or where concentration is the chief method of beneficiation."

The ball mill seems to be well adapted for dry crushing, but does not do so well where wet crushing is used. Other instances where a ball mill replaced stamps are found at the Huanchaca Mill in Bolivia, and at some mills in Western Australia. In both these cases the ore was crushed dry.

Cannel Coal.—Is there any market value for cannel coal in this country and what are its uses? What is the value as compared with other coal for steam purposes? What is the price as compared with other coals? Do you know if there is any exported from this country? I am told that it is used in Europe for chemical purposes, such as the manufacture of aniline dyes.—C. B. N.

Answer.—Cannel coal is little used in this country. It is at present mined only in Kentucky and its market is limited, because there is little to sell. In England it is valued as a gas coal, and also for household use, in grate fires, as it burns very freely and with a long flame, making a bright, cheerful fire. Its use as a gas coal explains your last statement, coal tar, aniline dyes, etc., being made of the residues. The average price obtained for Kentucky cannel last year was $2.50 per ton at mine, against 80c. for ordinary bituminous coal. As a steam coal it is not as good as the best bituminous coals. No cannel coal is exported, the mines being too far from tidewater.

Lithographic Stone.—Can you give information: 1. On the annual consumption of lithographic stone in the United States? 2. What quantity was imported during the year 1899? 3. What is the approximate selling price per pound? 4. Is this stone mined in this country; if not, what is the source of supply? 5. What duty if any is there on imports of this article? 6. For what if any purpose is this stone used besides lithography? 7. What are the requisite qualities of this stone?—W. J. B.

Answer.—1. There are no figures for the annual consumption in the United States. The production was 112 tons in 1898 and 40 tons in 1899.

2. The imports are not reported separately; they are, however, small in quantity.

3. The selling price varies widely according to the size and quality of the stone. Large stone, of fine quality, may sell from $100 up to $150; smaller ones would bring much less in proportion.

4. Lithographic stone has been found in Arizona, Utah and South Dakota. The Utah quarries were the only ones worked in 1898, and they are now closed. The production in 1899 was from Kentucky; at Brandenburg in that State a quarry was opened in 1898 and worked last year. The chief source of supply for the world is from the quarries of Solenhofen in Bavaria, which ship from 12,000 to 13,000 tons yearly.

5. There is no duty on lithographic stone imported.

6. The stone is not used for any other purpose; it has too much value for this special purpose.

7. Lithographic stone is a very solid, close-grained limestone. The essential qualities are fine and even grain, entire freedom from cracks and flaws, and good surface when finished.

We may add that the demand for the stone has decreased very much in this country since it has been found that aluminum sheets answer the same purpose. The aluminum is lighter, more easily handled, cheaper and free from the danger of breakage, while quite as good work can be done with them as with the best stone.

PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects, issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

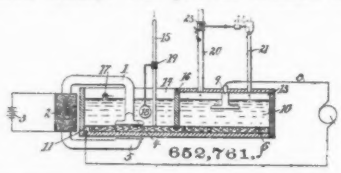
Week Ending July 3d, 1900.

652,738. DREDGER-BUCKET. William H. Arnold, New York, N. Y. The combination with a dredging-bucket and the suspension chains or cables, of an equalizing-bar by which said chains or cables are connected to the bucket, and projections for the frame of the bucket for protecting said bar and the chain connections therewith.

652,741. METHOD OF MAKING HYDROCYANIC ACID. Emil Beringer, Charlottenburg, Germany. The process consists in slowly adding to a boiling aqueous nitrate solution, a solution of sulphocyanide together with a mineral acid in quantity corresponding to one-half the nitrate employed.

652,748. MANUFACTURE OF ELECTRICAL FUSES OR CURRENT-ARRESTERS. Francis A. Cote, Ottawa, Canada, assignor of four-fifths to Toussaint G. Coursolles, same place, and Frederic L. Beique and Charles F. Sise, Montreal, Canada. An electrical fuse or current-arrester made with gold-leaf printed or embossed on an insulating-body, having the form of two strips terminating in an obtuse angle, which are connected together to form the fusing-point.

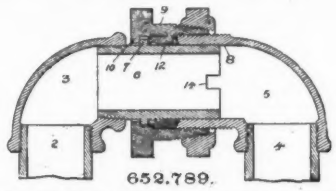
652,761. ELECTROLYTIC PRODUCTION OF CAUSTIC SODA, ETC. Justus B. Entz, Philadelphia, Pa., assignor to the American Alkali Company of New Jersey. The process consists in passing a current



through mercury, electrolyzing a superposed fluid to effect deposition on the mercury, and subjecting the mercury to the influence of a magnetic field to cause it to move and transfer the substance deposited.

652,773. APPARATUS FOR CLEANSING AND COOLING GAS. Ludwig Hirt, Grevenbroich, Germany. The combination of a main vessel, gas inlet and openings therefor, a gas-distributing device extending throughout the diameter of the vessel and located in the lower portion thereof, a water-spraying device located in the upper portion of the vessel, a series of grates the openings in each being angularly disposed to the openings in an adjacent grate, said grates being interposed between the water-spraying and gas-distributing devices and a filter layer located above the water-spraying device and in the path of the gas-outlet.

652,789. FLEXIBLE JOINT FOR PIPES. Adolph Leitelt, Jr., Grand Rapids, Mich., assignor to Aaron S. Nichols, Chicago, Ill. The combination of a tube threaded to one of the parts joined, and sliding in the other and having an exterior collar, a gland engaging said


652,789.

collar and threaded to the exterior of the other parts to be joined, and a lock-nut fitting said tapered and slitted end of the gland.

652,802. ROLLING-MILL APPLIANCE. James M. Murphy, Pittsburg, Pa. The combination of lifting mechanism adapted to raise the metal upwardly from a roll-pass, and an eccentric whereby the same is given a forward motion at the end of its travel.

652,833. ALLOY AND PROCESS OF MAKING SAME. Rolla C. Carpenter, Ithaca, N. Y. An alloy of aluminum, zinc and tin in which the quantity of aluminum is in excess of that of either the zinc or the tin. The process of compounding this alloy consists in first fusing the aluminum, then adding the tin, lowering the temperature of the molten mass and then adding zinc.

652,846. PROCESS OF PURIFYING AND STRENGTHENING BRINE FOR USE IN ELECTROLYTIC CELLS. James Hargreaves, Farnworth-in-Widnes, England. The process consists in conducting the weakened brine from the electrolytic cells, forcing same upward directly through and in intimate contact with a mass of impure salt contained in a sealed vessel by means of a steam jet, and then conducting the strengthened brine solution from the upper end of the said vessel back to the electrolytic cells.

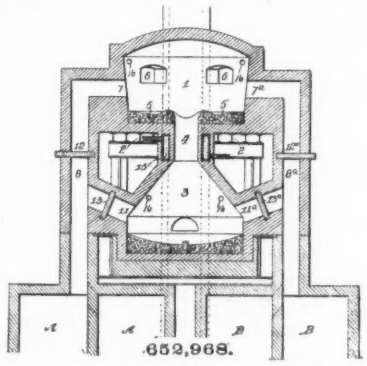
652,849. PROCESS OF EXTRACTING METALS FROM ORES OR SLIMES. Samuel H. Johnson and Henry L. Sulman, London, England, assignors to the S. H. Johnson & Co., same place. The method consists in removing a portion of the water from the ores or slimes by pressure, and then displacing the residual water in the pressed ores or slimes with an equal volume of a solvent solution.

652,877. PROCESS OF OBTAINING HARDENING OR TOUGHENING COMPOUNDS FOR ALLOYING WITH IRON OR STEEL. Richard C. Baker, London, England. The process of obtaining simultaneously calcium carbide and the boride of a metal capable of use as a hardening or toughening agent consists in subjecting a mixture of calcium borate, carbon and a material containing such metal to heat sufficient to effect the reaction.

652,900. GOLD-SAVING APPARATUS. Robert H. Postlethwaite, San Francisco, Cal., assignor to the Risdon Iron and Locomotive Works, same place. The combination of a rotary open grizzly, a distributing box arranged longitudinally beneath the grizzly and adapted to receive the material from the different parts of the latter, an inclined perforated distributing trough arranged between the upper portion of the grizzly and box, a series of escape openings formed along the longitudinal sides of the distributing box, gates for said openings, and inclined tables or platforms arranged at the sides of said distributing box and adapted to receive the material escaping from said openings.

652,911. PORTABLE CONVEYOR AND ELEVATOR. George E. Bowers, San Francisco, Cal. The combination of a horizontal carrier, means whereby it may be raised and lowered, an elevator, and means whereby it may be raised and lowered in unison with the carrier.

652,968. METALLURGICAL FURNACE. Edward Kerr, Pittsburg, Pa. A metallurgical furnace having in combination a melting chamber, a crucible arranged below the melting chamber, an opening or passage between the melting chamber and crucible for the passage of


652,968.

products of combustion and the molten metal into the crucible, the melting chamber having a port or opening for the admission of heating gases, flues or passages leading to the stack and connected by ports or openings to opposite sides of the crucible, and valves controlling the flow of products of combustion from the crucible.

652,980. MANUFACTURE OF MOLDED BLOCKS OF STEEL OR OTHER MATERIAL. Louis Perin, St. Amand-les-Eaux, France. The process consists in melting, by means of coke, any kind of old steel and iron with a mixture of manganese, silicon, lime, magnesia, aluminum, chromium, nickel and tungsten, used in variable proportions; in casting the steel thus melted in appropriate molds; in piling up, around the cast pieces, in suitable containing vessels, iron ore mixed with lime and chips or scales from rolled iron and the like, and in raising, in a reheating or annealing furnace, the molded pieces and the surrounding mixture to a temperature sufficient for the ore to take up the excess of carbon contained in the pieces.

653,007. PORTABLE MELTING APPARATUS. Newell S. Jenkins, Dresden, Germany. A muffle of refractory material having a hole in the bottom and an opening in the front, a carrier connected to the muffle, and having a hole therein, a vertical supporting rod passing through the hole in the carrier, and a screw for clamping the carrier and muffle to said rod, in combination with an arm pivoted at one side to the muffle so that its free end can be swung around opposite the opening in the front of the muffle.

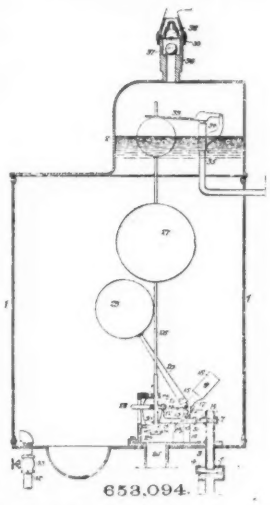
653,015. APPARATUS FOR MANUFACTURING ILLUMINATING-GAS. Eduard R. Besemfelder, Charlottenburg, Germany. An apparatus consisting of a series of superposed retorts connected alternately at opposite ends, rotary conveyors in said retorts, a conducting tower connected with the lowermost retort, inclined shelves located alternately at opposite sides of said tower, a rotary delivery mechanism for the glowing material below the lower end or throat of the tower, and means for connecting water-gas generators with said delivery mechanism.

653,027. GRAPHITE LUBRICATOR. Edmund H. Lunken, Denver, Colo., and Henry Ritter, Delhi, Ohio, assignors to the Lunkenheimer Company, Cincinnati, Ohio. The combination of a cup for the lubricant having a funnel-shaped discharge end, a tube passing down through the cup and opening into the funnel-shaped discharge end, a cover or cap for the cup having an orifice therethrough into said tube, and a cock in the cover for regulating the size of said orifice.

653,077. PROCESS OF TREATING MINERAL WOOL. Alexander D. Elbers, Hoboken, N. J. The method of making elastic mineral-wool moldings consists in compressing loose mineral wool as evenly as practicable to a suitable density, in molding the compressed wool in the dry state, in thoroughly permeating the moldings with a suitable agglutinating solution without saturating them fully with it, and in drying the moldings thus prepared.

653,078. APPARATUS FOR GENERATING OZONE. William Elworthy, London, England. Apparatus consisting of tubes of dielectric material fitted air tight in a partition in a box which divides the box into two hermetically separated compartments, metal conductors passing through the said tubes out of contact therewith, metal conductors coiled helically around the said tubes out of contact therewith, the said metal conductors within the tubes being connected with one terminal of a source of electricity while the said metal conductors surrounding the tubes are connected with the other terminal of the same source of electricity, an inlet for air to be ozonized in the upper compartment of the box and an outlet for the ozonized air in the lower compartment of the box.

653,094. HYDRAULIC AIR-COMPRESSOR. Daniel Kirkman, Philadelphia, Pa. A hydraulic air compressor in which are combined a vessel having a valved outlet for compressed air, a valved inlet and a valved outlet for water, an air-pressure relief and inlet valve or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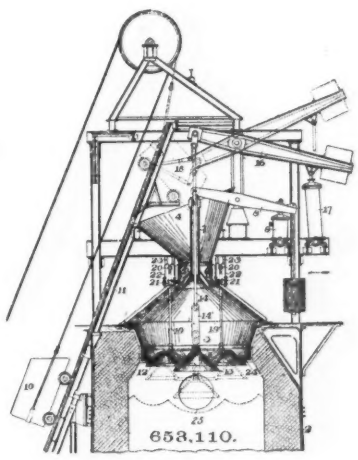

653,110.

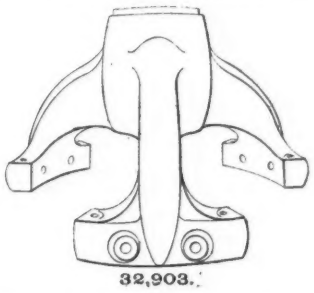
valves, and means for operating the same, a water-outlet valve stem having a float for lifting the same, a support for holding the water-outlet valve in the open position, and float mechanism for withdrawing said support as the water falls in the vessel.

653,101. WOOD-FILLER COMPOSITION. Albert M. Lennig, Jacksonville, Fla., assignor by mesne assignments to Clarence S. Hammatt, same place. The composition consists of gum extracted from palmetto; dextrine; soda silicate; powdered silex; and distilled water.

653,110. APPARATUS FOR FEEDING STOCK TO FURNACES. Thomas Morrison, Braddock, Pa. A blast furnace having a closed top and a side gas offtake, and provided with a feeding apparatus comprising a vertical movable annular section having an intermediate ridge arranged to split the stock and distribute it in the form of a central core and an annular surrounding core, and a closed central bell of larger diameter than the opening in the annular section, and seated upwardly against it, and mechanism for moving the bell downwardly beyond the limit of motion of the section.

653,133. APPARATUS FOR TREATING INGOTS OF STEEL. James H. Carpenter, Reading, Pa., assignor to the Carpenter Steel Company of New Jersey. A mold provided with two series of passages extending alternately from opposite sides of the mold, connections with a source of cooling liquid for each series, and a centrally-arranged supply pipe having connections with the alternate passages.

Design Patent 32,903. ORE-CRUSHER FRAME. Albert J. Gates and


32,903.

Thomas W. Capen, Chicago, Ill., assignors to the Gates Iron Works, same place. Term of patent 14 years.
The design of an ore-crusher frame, as shown.

GREAT BRITAIN.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy.

Week Ending June 9th, 1900.

10,083 of 1899. INCANDESCENT LIGHT. V. Daix, Paris, France. Preparation of oxides of rare earths in a matrix of carbon, for use in incandescent mantles by forming suerates and then charring.

13,874 of 1899. CUPOLA BRICK. A. Gadie, London. Specially shaped bricks for cupolas used in foundry work.

14,637 of 1899. CASTING SCRAP IRON. E. Appart, Jumet, Belgium. The use of scrap iron for melting and casting into usable shapes, instead of sending it back to the steel furnace.

16,210 of 1899. MAKING ELECTROLYTIC COPPER SHEETS. S. Cowper Coles, London. A rapidly revolving anode for producing copper sheets and wires by electrolysis.

2,708 of 1900. GRADING ORES. E. Labois and F. M. Castelnau, Paris, France. A method for grading ores by compressed air.

PERSONAL.

Mr. T. H. Oxnam has left California for Paris, to be absent till November 1st.

Mr. Oscar Szontagh, formerly with Capt. J. R. De La Mar, is in San Francisco.

Mr. Geo. Kislingbury, one of Capt. J. R. De La Mar's experts, is in San Francisco.

Mr. James F. Robinson, of Grass Valley, Cal., has been appointed secretary of the Debris Commission.

Mr. Gail Borden, of Los Angeles, Cal., who is largely interested in mining on the Pacific Coast, is in San Francisco.

Mr. H. W. Hammond, of Pittsburg, Pa., has been on a business visit to Manvel, Cal., where he has examined some property.

Mr. T. H. Trethewey, late of Bruce Mines, Ont., has left via London for Siberia to examine a gold mine for an English syndicate.

Mr. William Buckingham, representing Fairbanks, Morse & Company, of Chicago and Los Angeles, is in Arizona in the interest of his firm.

Captain J. R. De La Mar devoted the past week to his Utah and Nevada mining interests and will probably go to California the coming week.

Mr. A. F. Holden returned to Salt Lake City 10 days ago and is directing the affairs of Centennial-Eureka and United States Mining companies.

Mr. William F. Word has received the appointment of superintendent of the Gagnon Mine at Butte, Mont., and has entered upon the performance of his duties.

Mr. P. Isham, who has charge of the export business in pig iron at the New York office of Rogers, Brown & Company, is on a visit to Europe in the interest of his firm.

Mr. William Van Slooten, of New York City, has gone to Peru on professional business, to be gone about four months. He goes in the interest of American capitalists.

Mr. Willard S. Morse, general manager for the Guggenheim mining interests in Chihuahua, Mexico, is planning to add to the Juarez plant 2 copper matte furnaces of 20 tons daily capacity each.

Mr. F. Sakegawa, formerly of the Ashio Copper Mine, is now connected with the Sumitomo Reduction Works at Niehama, Iyo, Japan, where he is treating ores from the Besshi Copper Mine.

Dr. F. W. Simonds, of Simonds & Wainwright, mining engineers and assayers, of New York, has started on a trip to Montana and Nevada, where he will remain about a month examining mining properties.

Mr. J. W. Oliver, president of the American Machinery Company, has left for a 4 months' trip abroad. England, Germany and France, where his company has extensive connections, will be visited by Mr. Oliver.

Mr. Benton Orbison, for the past 5 years superintendent of the Twelfth street, Chicago, works of Fraser & Chalmers, has accepted a position with the American Steel Casting Company as general superintendent of its Alliance, O., plant.

Prof. C. H. Benjamin, who occupies the chair of mechanical engineering in the Case School of Applied Science, Cleveland, O., has been appointed supervising engineer to carry out the provisions of an anti-smoke ordinance recently passed by that city.

Mr. George Hardy, late superintendent and metallurgist of the Philadelphia Mining and Milling Company's plant at Andrews, N. M., is at present examining a large copper property in the State of Jalisco, Mexico, at the instance of a Pittsburg, Pa., syndicate.

Mr. Frank P. Mills, of Brookston, Ind., now 74 years of age, has been at Ishpeming, Mich., attending the 50th anniversary of the Cleveland-Cliffs Iron Company. Mr. Mills was agent for the Cleveland Company many years and was the first Mayor of Ishpeming.

Mr. Harry Cox, who for a number of years was foreman in the electrical department of the Homestead plant of the Carnegie Steel Company, has resigned to accept the position of chief electrician of the Woods Run plant of the Pressed Steel Car Company.

Messrs. C. A. Gehrman and James Bowden have resigned from the management of the Stanley Mine at Idaho Springs, Colo. Their places are filled by Mr. Bell, the mining engineer of the company, who will act as manager, and Mr. Cyphers as superintendent.

Mr. Arnold K. Reese, who has been superintendent of the blast furnace department of the Maryland Steel Company, at Sparrow's Point, Md., for 3 years, left recently to take charge of the G. Dawson Coleman furnaces at North Lebanon, Pa. Mr. Willard Fuller, of Cleveland, will be his successor at Sparrow's Point.

Mr. C. O. Brunner, treasurer of the Bethlehem Iron Company and Bethlehem Steel Company, of South Bethlehem, Pa., completed on July 12th his 40th year of service. The occasion was marked by the presentation to Mr. Brunner of a silver pitcher and salver and a handsome cane from his fellow-members of the staff of the 2 companies.

Mr. W. S. Keyes, president of the California State Mining Bureau; Mr. E. V. Bodwell, Q. C., of Victoria, B. C.; Mr. E. J. Roberts and Mr. F. J. Buckley, of Denver Colo., are making an examination of the workings of the Iron Mask Mine at Roseland, B. C., in connection with the pending litigation between this company and the Center Star.

OBITUARY.

Jasper Raymond Rand, brother of the late Adison C. Rand and a member of the Rand Drill Company and the Laflin-Rand Powder Company, died at his residence in Montclair, N. J., on July 18th. Mr. Rand was born in Westfield, Mass., of an old New England family, on October 17th, 1837. His early training was in the schools of his native town, and he took up the trade of a machinist. In 1870 he came to New York City and with his brother took up the manufacture of rock drills and mining machinery. The successful career of the Rand Drill Company is known to all. Much of its success was due to the efforts of Jasper Rand. He held at times various public offices in Montclair, and at his death was president of the Bank of Montclair. He leaves a wife and two children.

Col. Henry McCormick, a prominent man in the Pennsylvania iron trade, died at his country residence, Rosegarten, near Harrisburg, Pa., on July 14th. He was born at Harrisburg March 10th, 1831, and studied at the Harrisburg Academy and Yale University, graduating from Yale in 1852. He at first read law after graduation, but soon turned to the iron industry. He took charge of the Reading furnace at Robesonia in 1856, became manager of the Henry Clay Furnace at Columbia and in 1857 returned to Harrisburg to take charge of the Paxton Furnace, which his father had purchased. At the breaking out of the war he recruited a company of volunteers and in 1862 was appointed colonel of the First Pennsylvania and fought at Antietam. After the war in 1866 he erected the extensive nail works near Harrisburg, where for 23 years Col. McCormick arried on a successful business. He acted as treasurer of the commission that conducted the new geological survey of the State of Pennsylvania. A widow and 3 children survive him.

W. R. Wilson, an Australian mining man of note, died at his residence near Melbourne on May 28th. He was born near Tyrone in the North of Ireland, but went to Australia when but 6 years of age and pased his boyhood in the Geelong District. At 18 he went to New Zealand and became interested in placer mining. His affairs prospered and later he became the owner of the Bird-in-Hand and other mines in New South Wales. In 1883 he took an interest in some gold mining lands, which developed into the Barrier Ranges Mining Association, Mr. Wilson acting as general manager. In 1884 Broken Hill was developed and Mr. Wilson became one of the original shareholders of the Broken Hill Proprietary Company, and for several years was a director in the company, becoming chairman. In 1886 he went to America to engage a general manager for the company and from his study of American methods, advocated on his return the open cut system of working at Broken Hill. In spite of strong opposition the system was tried with gratifying results. In 1892 Mr. Wilson resigned from the Broken Hill Company and visited England. On his return he speculated sucessfully in a number of West Australian mining ventures. He also devoted much attention to mining on the west coast of Tasmania and was chairman of the Mount Syell Blocks Association. He also had an interest in the Melbourne Copper Company, N. S. W. He was 50 years old at his death and left a widow and one daughter.

INDUSTRIAL NOTES.

The Gates Iron Works, of Chicago, has the contract for a 75-ton concentrator to be built at Copalquin, Mexico.

The Dickson Manufacturing Company, of Scranton, Pa., has received orders for 2 60-cm. gauge locomotives, to be shipped to the Hacienda San Cristobal, one of the largest sugar plantations in Mexico.

The Max F. Abbe Manufacturing Company, maker of tube mills, announces that owing to the great increase in the volume of its business it has removed its New York offices to the St. Paul Building, 220 Broadway.

Rudolph Brandt of New York City, manufacturer of the Selden patent packing, states that this packing is in successful use on torpedo boats of the United States Navy, where the conditions of service are unusually severe.

Work has started at Birmingham, Ala., on a 5½-story brick and stone building for the Milner & Kettig Company, dealers in machinery, hardware and mining supplies. The firm will increase its already large business and will add to its traveling and sales department.

The Salisbury Carbonate Iron Company, of Chapinville, Conn., which has charcoal blast furnaces at Chatham and Copake Iron Works, New York, is to start the Copake Iron Works within the next 2 weeks. Work has been suspended on account of forest fires last spring, which cut off the supply of charcoal.

The Moore, Moore & Handley Hardware Company, of Birmingham, Ala., has purchased the Warrior Machine Company, large machinery dealers. The Moore, Moore & Handley Company 3 or 4 weeks since purchased the Perry Hardware Company and it is now one of the largest, if not the largest, hardware firms in the South.

The Standard Pneumatic Tool Company, of Chicago, states that A. B. Holmes, who has been connected with the company since its organization, has been appointed assistant manager, and will be located at the home office. The company have also opened an office in the Ferguson Building, Pittsburg, Pa., with Wm. Jennings in charge.

The Northern Pacific Railway Company has specified Bethlehem nickel-steel for the driving-axles and crank-pins for 20 locomotives now under contract with the Schenectady Locomotive Works, and the Bethlehem Steel Company, of South Bethlehem, Pa., booked orders for the forgings. The latter concern reports that the list of railroads using this material is steadily growing.

R. D. Wood & Company, of Philadelphia, have established a branch office in Denver, Colo., for the sale of the Taylor gas producer used for roasting ores and generating gas for fuel in large plants. A large plant of these gas producers is being installed at the Colorado & Philadelphia Reduction Works at Cripple Creek. The Guggenheim smelters in Mexico are also using this gas producer.

Fraser & Chalmers, Chicago, have received from the Anaconda Copper Mining Company of Butte, Mont., orders for a large amount of machinery for its new concentrating plant, which will have a capacity of 4,000 tons per day. This machinery includes 24 heavy pattern 5-ft. Huntington centrifugal roller quartz mills, 24 sets of 40 by 16 crushing rolls with forged steel shells, and 24 Blake crushers, sizes 24 by 12 and 15 by 9.

The M. C. Bullock Manufacturing Company, of Chicago, Ill., has, it reports, just shipped a large mine ventilator to West Virginia, a hoisting plant to the Black Hills, another to Spring Valley, a Willans engine to Massachusetts and a large diamond drill equipment to Washington, and has received orders for a hoist for the Mesabi Range, Minn., a large diamond drill and outfit for the Balkan States, a large mine ventilator for West Virginia, and a diamond drill for Missouri.

The Macomber & Whyte Rope Company states that it has purchased the entire interest of Mr. Leschen in the Leschen-Macomber-Whyte Company, and that he no longer has any connection whatever with their business or any authority to act for the company. which will hereafter be known as the Macomber & Whyte Rope Company. The firm will continue business at the old location, 19 and 21 South Canal street, Chicago. The company also states that it has a large stock of wire rope and specialties and is prepared to give all orders better attention than ever. The firm also makes a specialty of mine, quarry and contractors' supplies.

The Danville Foundry and Machine Company, of Danville, Ill., states that it has shipped a pair of 16 by 32 in. direct-acting hoisting engines, with drums arranged for hoisting from different levels, to the Lexington Coal Mining Company, Lexington, Mo., and is building another pair for the same company. It is also building a pair of endless-rope haulage engines for Nanaimo, B. C. These engines will be fitted with Walker's patent drums and are compound geared, the engine making 13 revolutions to the drum's 1. The company is also building for the Issaquah Coal Company, of Seattle, Wash., a pair of large direct-acting hoisting engines for a slope pitch 30°. Under construction for the Wells Creek Coal Company, of Byesville, O., is a large pair of direct-acting engines. The company states that its business has never been as good as at present.

The Colorado Iron Works, of Denver, Colo., reports the sale of a 36 by 51 in. silver-lead smelting furnace to V. Martos, Yude, Mex. A 1-stack

copper matte smelting plant complete, with steel jacketed blast furnace, 36 by 120 in., to H. H. Hoffman, Cananea, Mex.; 2 36 by 180 in. steel jacketed copper smelting blast furnaces, with sampling plant and other machinery, to the Rocky Mountain Smelting Company, at Florence, Colo.; a 5-stamp gold milling plant for the Lucky Strike Gold Mining Company, Gunnison, Colo.; a complete concentrating plant for the Capital Mining and Milling Company, Dumont, Colo.; a six double bowl slag truck for the Arkansas Valley Smelter; a 10 by 18 reverberatory smelting furnace and a 14 by 40 ft. calcining furnace for R. A. Wilfley for his properties in Arizona; a complete 1-stack copper matte smelting plant with steel jacketed blast furnace, 36 by 120 in., together with Bretherton's patent hot blast appliance, to the Kendrick-Gelder smelter at Silverton, Colo.; a 40 cast iron pipe hot blast stove for the Ducktown Sulphur and Iron Company at Isabella, Tenn.; 6 Bartlett concentrators for Chihuahua, Mex.; 12 Bartlett concentrators to Otto Mayers & Company at De Kalb Junction, N. Y.

TRADE CATALOGUES.

The new Leyner rock drill is described at some length in an attractive little 26-page pamphlet entitled "Nuggets from Burro-Land," issued by J. Geo. Leyner, of Denver, Colo.

The American Appraisal Company, which appraises and makes complete inventories of mines, mills and manufacturing plants, sends out as trade circulars that are self-explanatory—copies of letters received from many concerns who have employed the company and are pleased with the service it has rendered.

The Storage Power Company, which is interested in the development of W. E. Prall's system of using superheated water as a motive power for tramway cars, issues a 29-page pamphlet giving much information about the system and the development of Mr. Prall's ideas. The mechanical features of the generating plant and of the motors are described in some detail.

The North American Metaline Company of Long Island City, N. Y., issues a new catalogue of 24 pages, containing a discussion of the use of lubricants and a description of the "metalined" or oilless bearings manufactured by the company. Bearings that require no lubricant are particularly suited for wire rope and tramway sheaves, elevator pulleys, electric motors, ventilating fans and for certain special machines. The good qualities of "metalined" bearings are stated in numerous testimonials.

The "Prospector's Friend" is the title of catalogue No. 41, issued by the M. C. Bullock Company, of Chicago. This catalogue describes the "Bravo" hand power diamond drill, a machine in which the company states it has endeavored to combine portability, accuracy and durability. This drill itself weighs 325 lbs., and with its standard equipment 1,000 lbs., but can be divided into packages weighing less than 40 lbs. for transportation in a rough country. It can be used for surface or underground work, the catalogue says, and as the drill spindle is in front of the rod the operator has ample room in handling the rods in and out of the hole. The pamphlet gives a full description of the drill, the various sizes of cores (the drill will sink holes 350 ft. deep), directions for setting up, operating, setting diamond bits also the cost of operating, price, etc.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

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GENERAL MINING NEWS.

ALASKA.

Koyukuk River.

A letter from United States Consul J. C. McCook at Dawson, Canada, says: "As soon as the ice went out and it was safe to proceed down the Yukon, all styles of boats and scows started off, some for Nome and others for the newly discovered gold-fields up the Koyukuk River, Alaska. For the latter place there have left Dawson up to the present writing at least 200 prospectors, with some 150 horses and mules, to take the overland trail from a point a few miles below Fort Yukon to the head waters of the Koyukuk, where the new fields are. One small steamer, with 45 passengers, has left for the mouth of the river, from which she is to ascend about 600 miles to reach the diggings, these being situated about 100 miles above Peavey, on Slate and Myrtle Creeks. The overland trail follows the Chandelar River from below Fort Yukon to Slate Creek, Jim Creek and Myrtle, a distance of 150 to 175 miles. There will be more steamers leaving Dawson next month for the Koyukuk. It takes at least two mining seasons, not only in the Klondike, but in the gold belt running through Alaska, to prospect and ascertain where the pay is. Some who went into the Koyukuk countryy in 1898 remained over last winter and located the pay streak, which accounts for the present influx into that region."

ARIZONA.

Pinal County.

(From Our Special Correspondent.)

Pinal Consolidated Mining Company.—The office of this company has been removed from San Francisco to Los Angeles. The property, 18 miles northeast of Florence, was one of the old paying mines in early days. It is a silver-lead proposition. Nine tons shipped lately to the Selby Lead and Smelting Company yielded $600. The Lena and Martinez claims adjoining the Pinal have been purchased.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Oneida.—The old shaft, with its drifts, in this mine near Amador City, has been cleared from water to a depth of 1,360 ft. The 60-stamp mill, the trestle from the mill to the hoist and the rock-breaker are almost ready for business.

Calaveras County.

(From Our Special Correspondent.)

Ghost.—This mine on the edge of Angels, east of the Utica-Sickles lode, is being pumped out and will be thoroughly developed. The mine has been idle for some time.

Oriole.—A fine body of ore has been struck in the south drift of the 1,600-ft. level in the north shaft. The vein is said to be large and all the rock good milling. Seventeen men are employed underground. The mine is located 1½ miles from Angels.

Ritter Mining Company.—This company has been incorporated with a capital stock of $100,000. The directors are: E. C. Rigney, C. D. Fortuna, S. E. Redmond, E. Casey and F. J. Solinsky. The company will develop the Ritter Mine near El Dorado.

San Justo.—This mine on Carson Creek, 2 miles east from Glencoe, is to be re-opened. The old shaft was down 200 ft.

Table Mountain.—This cement gravel mine is now on a paying basis, and sufficient development work has been done to keep the 5 stamp mill crushing day and night. More stamps will probably be added soon, as the present mill can only take care of about 30 tons of the hard cement every 24 hours. The property is located between Sheepranch and El Dorado. L. H. Carver is superintendent.

El Dorado County.

(From Our Special Correspondent.)

Gomez.—On this property, on Mathenas Creek, which is being worked under lease by T. Williams and W. Yates, a strike has been made in a shallow prospect hole, and a great deal of gold is said to have been taken out. The ledge, which is 8 ft. wide, has a narrow seam of very rich ore on the east wall. Development work is being pushed to determine the extent of the ore body. Henry Kroener is owner.

Mariposa County.

(From Our Special Correspondent.)

Frances.—The shaft is down 300 ft., with levels at the 100, 200 and 300 ft. The upper level has been run 150 ft., the second 300 ft. and the lower one 200 ft. About 700 tons of ore on the dump was taken out while doing the development work. This ore carries 8% sulphurets. The water tapped in the old workings has been pumped out.

Shasta County.

(From Our Special Correspondent.)

Midas Gold Mining Company.—This company has purchased a ½ interest in the Buckhorn placer, the Yellow Pine quartz and the Red Fox quartz mines, also a ½ interest in the water right of 1,500 in., and the Huntington Ditch, all in Harrison Gulch.

Siskiyou County.

(From Our Special Correspondent.)

The dredger at Hawkinsville, in Yuba Creek, has excavated down to bedrock, and as soon as work permits night and day shifts will be put on. So far the machinery works smoothly.

American Bar Mining Company.—This company owns about 2½ miles of ground in the Klamath River bed below Ash Creek. A rich channel has been uncovered and the company anticipates a large output this season. Another wing dam has been started.

Cherry Hill.—After a 24-hour run on ore from this mine, owned and operated by E. D. Baker, of Cherry Creek, the clean-up yielded $5,300 in gold.

Dewey.—Thirty tons of high-grade ore are shipped daily from this mine 8 miles from Gazelle, to the Keswick Smelters. Eighty men are employed on development work and "blocking out." As soon as the extent of the ore body is ascertained the capacity of the Smelter will be decided and its erection will commence. The new town around the mines is called Manila. C. H. Southers is general manager.

Trinity County.

(From Our Special Correspondent.)

Loftus.—The lower tunnel of this mine, near Abrams, is in 100 ft. on the ledge. The vein, 4 ft. in width, is said to average $20 per ton. The erection of a mill is contemplated.

Tuolomne County.

(From Our Special Correspondent.)

Confidence.—In the south drift on the 350-ft. level an 18-ft. ledge showing free gold and a large percentage of sulphuret, is reported found. The blower and steam hoist have been removed from the north drift on the 800 ft. as work has been discontinued in the winzes. Stoping is to be resumed between the 7th and 8th levels. When the new flume is completed water for the battery will be brought from a spring 6,000 ft. away. The 20-stamp mill is crushing day and night. Neil Carmichael is superintendent.

Gagnere.—The new shaft is down 180 ft., and the new gallows frame is completed.

Mohican Mining Company.—The claims of this company are showing up well. A bridge is being built across the north fork of the Tuolumne River. Houses and cabins are being built, and roads and trails constructed. The underground development work will commence at an early date.

Mount Jefferson.—A continuation of an old and rich shoot has been struck 320 ft. east of the main shaft in this mine at Groveland.

Poison Oak.—At this mine the main shaft is down 250 ft. and an upraise is being made from the bottom level up to the tunnel level, to give ventilation. The vein averages about 4 ft. in width, showing free gold and carrying high-grade sulphurets.

COLORADO.

Dolores County.

(From Our Special Correspondent.)

Ore Shipments.—Shipments of ore from Rico Station for June amounted to 17 carloads.

Black Hawk.—This Rico property has resumed work and began shipping almost immediately. Considerable development is also being done.

Grand View.—Jos. Spinlock made one carload shipment July 1st from his lease on this property, with others to follow at once.

Gilpin County.

(From Our Special Correspondent.)

Mining Deeds and Transfers.—G. Curtis et al. to Hy. Cole 2/3 interest in Little Blanche and Reno lodes; Chicago Gold Company to Alfred Simonds the Monroe and Burroughs lodes; A. J. Smith to H. T. Shipley 1/3 interest in Tramway and Felix lodes; J. J. Morris to R. E. Morris ½ interest in Bunker Hill lode; Hy. P. Barbour, trustee, to E. L. Alexander, Little Tootsey group of 5 claims, Little Joe placer and mill site.

Banta-Hill Consolidated Mining Company.—Sinking is in progress at the Hill shaft intending to go down 200 or 300 ft. deeper. A nice vein of galena, pyrite and gray copper has been opened. From all appearances this property should soon be a steady shipper.

Cedar.—Eastern parties have leased and bonded this mine and will erect a new shaft building and install machinery. M. Flaherty, Central City, Colo., is manager.

Fannie.—This is a silver property, which lessees are opening, having struck a body of ore running over 700 oz. silver per ton. A plant of machinery will be put up at once and new shaft-building. John Cundy, Black Hawk, is manager.

Gold Coin Mining Company.—Orders have been received to suspend work for the present, but local parties have gone to work under a lease proposition.

Kansas-Burroughs Consolidated Mining Company.—June shipments amounted to 346 tramway cars, or 2,931 tons, of milling ore, which represents only 3 weeks' actual work. The company is sinking its main shaft now over 1,200 ft. deep. P. McCann, Central City, Colo., is manager.

Kokomo.—Chicagoans and Bostonians have secured a lease and bond on this property and preparatory work is being carried on with a view to heavy developments. Henry Paul, of Denver, is the owner.

Pocahontas.—Sinking has begun, intending to sink shaft of 290 ft. 200 ft. deeper. J. H. Nicholls, Central City, Colo., is manager.

West Calhoun.—Gunnison parties interested in a lease and bond have erected a shaft building

and put up machinery. W. S. Shaw, Russell Central City, Colo., is manager.

Gunnison County.

(From Our Special Correspondent.)

Dale Gold Mining Company.—The cross-cut run from the bottom of the 100-ft. shaft has struck the vein, which is much richer at this point and carries considerable free gold. Drifting both ways has begun from the cross-cut. The new mill will be completed and running by August 1st.

Jasper Chimney.—A shaft is being sunk on the Jasper Chimney at Vulcan which will cut the vein on its dip at a depth of 60 ft.

Oakland Tunnel.—This tunnel is being driven for the purpose of developing a group of claims on the extension of the Humboldt vein. Young & Baker are pushing the work.

Tin Cup District.—The Kalamazoo placer has resumed work for the season with a force of 12 men. Twenty-five men have been put on lately at the Union placer. The Gold Cup will resume shipments July 10th. The Homestake on Anna Mountain has been leased and bonded to Jones & McPhial.

Vulcan.—A new hoisting plant is being put in at the Vulcan. Development is being pushed in the 5th level.

White Pine District.—The Victor has resumed operations with two shifts. The new smelter blew in June 20th with a full force. A 4-ft. vein of high-grade lead ore has been struck in the Chicago, which also carries a streak of very rich silver ore.

Lake County—Leadville.

(From Our Special Correspondent.)

Leadville Ore Tonnage.—The output for the first half of July shows a decrease from June, although considerable heavier than a year ago.

Zinc Shipments.—Jacobson & Company, of New York, have arranged for another shipment of 1,800 tons of zinc ore to Europe as soon as it can be loaded. Most of this shipment will come from the Moyer of the Iron Silver Company, and the Maid.

A. M. W.—On the Wolftone the shaft has been enlarged from the surface to a depth of 950 ft. Three Cameron sinkers are being put in and a Knowles pump will be installed at 1,200 ft. as soon as that point can be reached.

Ballard.—The past three months have been given up largelv to development work and an ore body nearly 500 ft. in length and from 15 to 40 ft. high has been blocked out. It is a good grade gold ore and the lowest of it does not run under an ounce, while most of it is much richer. Another shipment of 75 tons of bismuth will be made from the Ballard to London about July 20th.

Black Iron.—On the south end of this ground Condron & Company are following the vein, and ore averaging 200 oz. silver is being sacked. On the north end F. M. Myrick has caught the vein only a few feet from the surface in a new shaft and has a sulphuret assaying 200 to 250 ozs. silver to the ton.

California Gulch Mining Company.—A new surface plant has been erected at the shaft, while at 400 ft. a station has been cut and a big pump put in. The shaft is now 400 ft. deep and will go 100 ft. deeper before drifting begins.

Comstock Mining Company.—The new shaft at 600 ft. in the gray porphyry has cut a vein of lead sulphide ore 1 ft. thick, averaging in gold and silver $35 to the ton.

Home Extension Mining Company.—A. M. Gaines has charge for the Boston men who are starting a new deep shaft not far from Harrison avenue, the principal business street of the city, between East Third and Second streets. The ground adjoins the Home and Bohn and is considered valuable. The eastern end of the business is looked after by B. Wilkins, of Boston. The contract for the new shaft calls for a depth of 530 ft.

Home Mining Company.—Shipments average 400 tons a day from the 3 shafts.

Huckleberry.—This property in the St. Kevin district started up recently by lessees is shipping again, the ore averaging 80 oz. silver. So far the ore body is very small.

Midas.—One hundred and fifty tons a day of iron ore are mined. Three 8-hour shifts are doing the work.

Mike & Starr.—Shipments of 50 tons a day are resumed, as the Buena Vista smelter is repaired.

Neusitz Mining Company.—These people who are operating in the rear of the high school building on West Ninth street, have incorporated, and the work started a few months ago is to be pushed ahead in earnest at an early date. Mr. C. W. Dennison is in charge of this enterprise and is arranging to place a large plant of machinery in position.

New Monarch Mining Company.—At the annual meeting of the company officers were elected as follows: President, J. C. Kortz; vice-president, H. C. Reddington; treasurer, J. M. Thomas; secretary, W. A. Miles; general manager, Tim Goodwin. This is an Illinois concern.

Orion.—This former prospect has developed into a good paying mine under the new lessees headed by Charles Stead. A large amount of development work is being done and an iron body has been opened up which yields about 50 tons per day. The shaft is to be sunk 40 ft. deeper so as to enable better handling of the ore body.

Phoenix Mining Company.—These lessees of the old Sixth street shaft have made it the biggest manganese outputter in the camp to-day and are shipping 150 to 200 tons per day to Chicago through a Colorado Springs brokerage firm.

Poverty Flat Mining Company.—The new Seeley shaft on the S. Small claim has struck mineralized contact at 240 ft. Shipments are made regularly of iron ore from the old shaft on the Jason.

Silver Cord Mining and Leasing Company.—W. L. Cooper is in charge and a product of 50 tons a day is coming through the Cleora claim. The ore bodies are being opened and shipments will largely increase in the near future. The work is conducted through the Yak tunnel.

Silver Moon Mining Company.—This is a new company on Sugar Loaf Mountain and is going down after the Black Iron ore shoot. This same vein in the Black Iron averages 100 oz. silver.

Tarshish Mining Company.—The new shaft is 630 ft. and sinking has ceased. Stations are being cut at 620 ft. and 250 ft. preparatory to drifting. At 250 ft. a fine vein of lead ore was cut.

Valentine Mining Company.—This company is to conduct work on the old Lucky Weber property on Brooklyn Heights, now known as the Valentine.

Yak Mining and Tunnel Company.—These people, in addition to pushing their big bore forward, have recently been making important surface improvements. The tunnel is in over 8,000 ft. and the ore is dumped at the mouth right into the Rio Grande cars, a switch having been built by that line to the tunnel. A new and larger air compressor has just been placed in position and a 5-in. pipe has been substituted for the 3-in. pipe. Two new boilers are being put in this week and other enlarged surface improvements are to be made at once.

Ouray County.

(From Our Special Correspondent.)

Camp Bird Mines.—The English syndicate which recently purchased Stratton's Independence mine at Cripple Creek is reported negotiating for the purchase of these mines at Ouray. Experts have been inspecting the workings for the last 30 days and after a thorough examination have expressed themselves as thoroughly satisfied with the conditions.

Teller.—Brewer & Arps, lessees, have encountered a very rich streak of silver-lead ore in the upper quartzite formation.

Trout & Fisherman.—Chelders & Wilson have purchased a controlling interest in this lease and are shipping high-grade gray copper ore.

Pitkin County.

Munn Tunnel.—In this tunnel on Snow Mass Mountain, about 12 miles from Aspen, a stake of high-grade ore giving copper silver and gold values is reported at 225 ft. in.

Summit County.

(From an Occasional Correspondent.)

Augusta Gold Mining Company.—This company is pushing work on its tunnel through the west end of Farncomb Hill. It is now in about 200 ft. in the main tunnel and making good progress with 3 shifts.

Chester.—This group of claims near Breckenridge has been sold by Lyman & Acton to Eastern parties. The group carries an extension of the Hamilton vein and is a low-grade proposition.

Gold Pan.—This placer company is prospecting its ground between Breckenridge and the Governor Mill, 6 miles to the South, along the Blue River. It has 2 churn drills at work, and has begun a 2½ mile ditch to take water from the Blue River. The ditch and a 1-mile pipe line will give about 450 ft. head. About 50 men are busy.

North American Gold Dredging Company.—Work on this company's property continues with a force of about 50 men. One dredge is being used and two hydraulic elevators at the mouth of Galena Gulch.

Pride Mining Company.—A remarkable strike is reported in the property of this company, operating in the old Montezuma District, which of late years has only seen little activity, but now promises to come to the front again. At a depth of 350 ft. a vein of ore was discovered, running it is stated, from 11 to 16 oz. gold, from 100 to 193 oz. silver and about 25% lead.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Cripple Creek Dividends.—The Gold King has just declared its quarterly dividend of 3c, per share, amounting to $30,000. The Vindicator Company has also declared its quarterly dividend of 5c. per share, making $55,000. The Consolidated Mines has declared its monthly dividend of 1c. per share, or $10,000; the Gold Coin a monthly dividend of 2c., or $20,000; the Modoc 1c. per share, or $5,000. The Portland has paid its first quarterly dividend, amounting to 6c. per share, or $180,000. The monthly dividend of the Independence Town and Mining Company has again been passed owing to the expensive litigation that the company is involved in.

Acacia Gold Mining Company.—The company's affairs are looking well. The Wrockloff lease on the north end of the Burns claim has sent a 100-ton shipment to market that is estimated to run from 3 to 6 oz. per ton in gold. In the Brady and McGill lease a new vein is being prospected which bids fair to greatly increase the output. This property has made great progress during the past year or so.

Anchoria-Leland Gold Mining Company.—At the annual meeting this week the following directors were elected: Irving Howbert, J. C. Plumb, T. Harrison, John Potter, Edgar Howbert, W. E. Anderson, C. W. Howbert, S. N. Nye and F. H. Gay. No reports have been given out, but it is understood that considerable development work is in progress. This mine has produced a large amount of ore and paid out considerable dividends in the past, but has of late been doing only development. Irving Howbert was chosen president; C. W. Howbert, vice-president and general manager; J. C. Plumb, treasurer; and F. H. Gay, secretary.

Unexpected.—A strike of quite large proportions is reported on this property on Bull Hill near Raven Hill. It is rumored that Messrs. Lennox and Giddings of Colorado Springs have got hold of the lease.

Union Gold Mining Company.—The official reports recently issued show that most of the work was done during the year by lessees. In the main workings the ground was leased in small blocks and considerable ore extracted. The total amount of drifting was 2,918 ft., crosscutting 1,349 ft., sinking prospect shafts and on Pike's Peak vein, 1,207 ft. As under leases the ore is taken out as fast as opened, there is very little ore in sight. The total expenses were $36,855, and the total receipts were $57,826, leaving a profit for the year of $20,972. Harold Starkweather of Cripple Creek is in charge.

IDAHO.

Owyhee County.

Blaine Mill.—The engine in this mill, at Silver City, owned by the Trade Dollar Consolidated Mining Company, was wrecked last week through some neglect of the engineer and the mill may have to stop work for a month. This will necessitate closing down the Trade Dollar and Blaine mines.

INDIANA.

Mississinewa Mining Company.—This company, which owns the gas plant at Marion, Ind., and about 20,000 acres of gas and oil leases, has sold all its property for $800,000. The purchaser is ostensibly John R. Pierson, president of the Indianapolis Gas Company. It is thought, however, that the transfer will not be made to the Indianapolis Gas Company, but to the Standard Oil Company.

MICHIGAN.

Copper.

Trimountain.—Ground has been broken for the new 3-compartment shaft north of No. 1. The shaft will be 8 by 22 ft. inside the timbers.

Calumet & Hecla.—The company has resumed work at No. 2 shaft where the recent fire occurred.

At shaft 14 a device for sorting rock after crushing, instead of before crushing, thereby giving a much closer selection. After the rock goes through the crusher it falls upon a bobbin conveyor belt, and when good rock is hoisted the face of the belt upon which the rock falls travels to the north; on each side of the belt are boys or men, who take out what looks like poor rock and throw it into a chute which drops it to the belt below, which runs to the poor rock bin to the south. When a batch of poor rock is hoisted the belt is reversed and the poor rock is conveyed to the south; on its passage the sorters watch for any good copper rock, which they pick out and throw into a chute leading to the good rock bin below.

Marquette County.

Cleveland-Cliffs Iron Company.—This company, the oldest in the United States, celebrated the 50th anniversary of the organization of the Cleveland Iron Mining Company, the original title of the existing company, at Ishpeming, Mich., Saturday, July 14th. The programme in-

cluded devotional service, conducted by Rt. Rev. G. Mott Williams, Bishop of Marquette; music; historical address by Peter White, of Marquette, Mich.; and reception to the company's employes. The incorporators of the company, in 1850, were Samuel L. Mather, M. L. Hewitt, C. D. Brayton, John Outhwaite, John W. Allen, Isaac L. Hewitt. The directors for 1900 are: William G. Mather, J. H. Wade, E. R. Perkins, Samuel Mather, J. H. McBride, Samuel E. Williamson, W. S. Tyler, J. H. Hoyt, Peter White.

Negaunee.—This mine at Negaunee, which had a bad cave some weeks since, is being reopened and will be worked again on the caving system.

Richmond.—This mine is now practically the only one in the Cascade Range on which any work is being done. All the Cascade ores run high in silicon and many are of Bessemer grade, but the percentage of iron is low.

Ropes.—At the gold mine near Ishpeming the cyanide plant for the oil tailings pile is about completed and cyaniding will soon begin.

Iron-Menominee Range.

Bristol.—Seventy men have been laid off at this low-grade at Crystal Falls, owing to the falling off in ore sales. The property belongs to Oglebay, Norton & Company, of Cleveland, O.

MINNESOTA.

(From Our Special Correspondent.)

Iron ore shipments to July 1st and for July to date have run about 400,000 tons per week, while for the Sault Canal to date they have been 6,200,000 tons. The movement of the Duluth & Iron Range road is heavier and is likely to average 20,000 tons daily for July, Sundays included. There is no change in freight, for about all ore going down is old contracts.

There are now 3 foreign bottoms in the lake ore trade, one chartered from Two Harbors to Hamilton, the others for the Algoma Central. There will be 2 more next month.

Iron-Mesabi Range.

(From Our Special Correspondent.)

Corrigan, McKinney & Company will shortly begin opening a new property covering 120 acres of leasehold, which they have lately secured from the J. J. Hill interests. This is in section 28, T. 58, R. 20, a mile east of the Pillsbury, and is supposed to be valuable.

Explorations are not so vigorous as some months ago, but drill work remains active. There are 27 diamond and churn drills working west of Virginia, and nearly as many to the east.

Mahoning Ore and Steel Company.—This company has let a contract for removing overburden from a tract 400 by 2,200 ft., adjoining the already worked portion of the mine. This strip ranges from 15 to 50 ft. thick. Between 150,000 and 200,000 cu. yds. will be moved this year. The mine has a stripped area of 35 acres already and is shipping about 10,000 tons a day. The stripping contractors have lately put in 1 bucyrus shovel, several locomotives and numerous cars and are stripping by machinery costing $35,000. The same firm has done all dirt work at the mine.

McGregor.—This new property at Hibbing has closed down and will be allowed to fill with water. Its ore is not of a grade or physical quality to permit mining at present. A 3-compartment shaft had been sunk 60 ft., 1/3 the way to the ore, of which a large deposit had been explored.

Ohio Iron Company.—This Virginia property has discontinued shipping for the present.

Road Exploration.—An interest in this property, near Hibbing, has passed into the hands of H. Roberts, of Duluth. It is a low-grade, chiefly non-Bessemer, but the extent of the ore has probably not been shown.

Stevenson.—This property has shipped several cargoes of ore and is hoisting from 2 shafts.

Iron—Vermilion Range.

(From Our Special Correspondent.)

The four diamond drills on the n. e. ¼ of section 25, T. 63, R. 12, for the Minnesota Iron Company are down an aggregate of some 1,800 ft. Two are working into a jasper outcropping and the others are in the greenstone outside it. The jasper comes out in the s. e. of the n. e. The indications are most favorable for a mine, but the company is giving out no information.

Several of the important explorations of both the Minnesota Iron company and the Oliver Iron Mining Company have been abandoned, the results not justifying continuance. Many thousands of dollars have been spent on this range since last fall, but with a few exceptions the ore found has been limited. The Minnesota Iron Company has now abandoned its work near Robinson Lake, east of Tower.

Considerable work is being done on this range along the north line of T. 63, R. 10, and the south line of T. 64, R. 10, and at the northeast corner of T. 63, R. 11. Several of the large companies are either exploring here or are preparing to do so. This is some 15 miles northeast from Ely.

Chandler Iron Company.—This company is operating a number of diamond drills at various points near its mine, at Ely, and has several locations in view for early exploration. It has a complete and thorough exploring branch fully organized, with a large payroll.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Chicago Zinc Mining Company.—Elias C. Benedict, W. Prescott Wellman and Edwin T. Rice, Jr., of New York, individually and as assignees of the claims of other stockholders, have brought action before Justice Bischoff of the Supreme Court of New York for judgment on the pleadings in their action to recover damages of $31,000 from the Guardian Trust Company for inducing them to purchase stock in the Chicago Zinc Mining Company, which they claim is worthless. The plaintiffs say that the defendant company falsely represented that the mining company, whose property is at Joplin, Mo., was operated at large profit, and that it was earnings and paying dividends of 1% half-monthly. The defendant demurred, alleging that a good cause of action had not been set up. The Court reserved decision.

Joplin Ore Market.—The zinc ore market is in a much healthier condition than for weeks past. The price for top grade zinc advanced $2 per ton, about 100 tons at Webb City selling for $28 per ton, while at Galena some lower grade ore on the Southside ground sold for $4 per ton more than last week. The general opinion seems to be that the bottom has been reached for zinc ore. Lead was $1.25 per 1,000 lbs. lower, selling at $21.75 per 1,000 lbs. all the week.

Following is the turn-in by camps of the Joplin District for the week ending Saturday, July 14th:

	Zinc lbs.	Lead lbs.	Value.
Joplin	2,280,760	466,580	$38,657
Galena-Empire	1,300,390	95,010	16,896
Carterville	1,270,470	212,570	20,504
Webb City	432,350	37,820	6,011
Belleville	392,240	1,890	5,140
Oronogo	517,150	2,520	6,482
Aurora	810,610	22,420	7,681
Stotts City	103,800	31,450	2,025
Central City	32,030	1,560	434
Cave Springs	281,660	13,600	3,819
Roaring Springs	48,910	9,190	911
Carthage	141,610	.....	1,841
Springfield	54,000	.....	675
Neck City	195,600	.....	2,542
Granby	320,600	27,200	3,750
Carl Junction	26,530	.....	345
District total	8,208,610	921,900	$117,621
Total, 28 weeks	265,039,410	30,816,050	$4,590,296

During the corresponding week last year, top grade zinc ore sold at $44.50 per ton and lead at $27.50 per 1,000 lbs. The output was less than last week by 746,660 lbs. of zinc and 19,630 lbs. of lead, but the value was greater by $84,910. For the first 28 weeks of last year the lead sales were less than this year by 5,598,640 lbs.; the zinc sales greater by 19,695,290 lbs., and the value greater by $1,545,379. As compared with the previous week, the sales were greater by 109,500 lbs. of lead and 300,190 lbs. of zinc and the value was greater by $9,069.

The McAbee lease of the Harper land in Cottonwood Hollow, west of Joplin, has been purchased by the Colonial Zinc Company through F. J. Hart and J. H. Dangerfield for $20,000. The company is moving a mill to the ground to work the fine ore from the House of Lords Mine and other shafts on the ground. The House of Lords with 3 men in the ground and 2 hand jigs has been making a car of jack per week.

Three hundred men at the Lanyon Zinc Company's works at La Harpe, Kan., struck July 16th, because they objected to a foreman. The plant is the largest of the Lanyon Zinc Company's works and consumes a large amount of zinc ore from this district.

St. Francois County.

St. Louis Smelting and Refining Company.—This company's plant near Bonne Terre has started work. The mill building is of iron and steel and contains some novel features including an electric hoist and a pneumatic lifter for the cages. The ore is dumped into a rolling cradle, thence to a "grizzly," thence to the crushers; then to the Robins patent conveyor, that moves it 1,000 ft. and dumps it upon the main belt which distributes it to the different bins. The ore to be recrushed is carried back by a centrifugal pump; there are 24 circular slime tables in 4 sections, which receive the overflow from the chats tank. Four engines capable of developing 2,000 H. P., 2 400 K. W. dynamos, 2 2,000-gal. and a 1,000-gal. pump. A 2,500-H. P. Worthington steam condenser, and an air compressor, 2,000 cu. ft. per minute capacity, are used. There are 7 crushers and 175 jigs. The chat tank is 210 ft. long and the water used in the mill goes by a sluice 5 by 5 by 800 ft. to a primary and secondary settling basin, then to a skimmer dam to a suction pipe and then back to the mill. The capacity of the mill is 1,000 tons of ore per day. There are 300 men employed. A third shaft will soon be sunk. The company owns 1,200 acres of land on which other improvements are being made; several miles of railroad tract, with one electric engine and cars. R. D. O. Johnson is superintendent, Henry Hunt mill superintendent, W. I. Barley master mechanic.

MONTANA.

Cascade County.

Diamond R.—This mill at Neihart is now shipping concentrates. This present mill, treating 200 tons of ore daily, is equipped to make shipments of concentrates upon every train, and the output sent to the smelter will range from 400 to 600 tons per month, and may even exceed that figure. This week is doubtless a turning point in the camp's development, and the people feel to praise the Diamond R. company for thus demonstrating the feasibility of a system which means so much for the development of Neihart.

Silver Belt Mining Company.—This company will soon start working its claim near the Broadwater group of mines on the side of Old Baldy Mountain. The owners are D. L. S. Barker and Jonathan McAssey. The values in the ore are chiefly in silver.

Madison County.

Boss Tweed.—This mine in the Clipper Group at Mineral Hill is reported to show a large shoot of ore showing good values. Elling & Morris are the owners.

NEVADA.

Elko County.

(From Our Special Correspondent.)

Dexter.—At Salt Lake City, on July 9th, the annual meeting resulted in the selection of the following officers and directors: E. H. Airis, president; J. S. Lakin, vice-president; George E. Airis, secretary; S. B. Milner, E. O. Lee, all of Salt Lake, and H. C. Southworth, of Boston. According to the secretary's report the total receipts for the year were $237,527, expenses $177,738. No successor has been named for Superintendent Legg. He reports the mine in excellent condition.

Storey County—Comstock Lode.

Best & Belcher Mining Company.—At the annual meeting last week the old board of directors was re-elected, with George R. Wells, president; Charles H. Fish, vice-president; M. Jaffe, secretary; Nevada Bank, depository of funds, and James H. Kinkead, superintendent.

Washoe County.

(From Our Special Correspondent.)

International Electric Mining Company.—A lot of $45 silver and gold ore from the Grub Stake Mine, in the Trinity District, owned by this company, has been run at the Reno Reduction Works.

White Pine County.

(From Our Special Correspondent.)

Nevada Gold Development Company.—This company has been incorporated with a capital stock of $1,500 to work the New Home and other mining claims in the White Pine District. The directors are J. McNamee, president; Charles G. Plummer, vice-president; F. S. Luff, secretary, E. Osborn and L. E. Hall.

NEW JERSEY.

Morris County.

About 1,000 men employed in the iron mines of this county struck against a proposed reduction in wages to the rate that prevailed last April. The strikers have made threats of violence and at some of the mines, notably the Richards at Port Oram, the Elizabeth at Mount Hope, the Wharton at Hibernia and the Hurd at Port Oram, armed guards have been stationed to prevent any destruction of property.

OHIO.

State Mine Inspector Biddison has issued new rules governing operations in Ohio mines. Each mine must have 2 separate outlets for miners; a current of air sufficient to carry out all poisonous gases must be maintained. Where poisonous gases develop, a current of air 300 ft. per minute must be provided, and all break throughs, except the one nearest the face of the working, must be kept closed.

OREGON.

Jackson County.

Gold Standard.—This mine, situated near Jacksonville, is reported bonded for 6 months to Montana capitalists and extensive development operations have been inaugurated. A quartz mill was erected on this property a short time ago and will, while this bond continues, be used for custom work by the owners, Casey & McWilliams.

PENNSYLVANIA.

Anthracite Coal.

Connell Coal Company.—The employes of this company at Duryea have decided to return to work at the same prices that were paid when they went out on strike 6 months ago. Their decision to return was brought about by their families being in distress. The result affects about 1,000 men and boys.

Bituminous Coal.

Aetna & Vesuvius Coal Company.—This company was recently organized by representatives

of the Spang, Chalfant Company, manufacturers of pipes and tubes, at Pittsburg, and Moorhead Brothers & Company, making plates and skelp, also of Pittsburg, for mining coal for the use of the plants of the 2 firms, independent of the outside coal companies. Recently these concerns bought 100 acres of additional coal land on the West Penn Railroad, which adjoins a tract they have been operating for 4 years.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Mica Shipments.—Regular shipments of mica are being made from several mines, most of which are purchased by the Chicago Mica Company. The old Oom Paul, Crown Tin and New York mica mines are being negotiated for.

Claire Belle.—Frank Hebert, of Custer, has leased the stamp mill on the St. Elmo ground, and it is nearly ready for ore. The St. Elmo Mine, owned by Omaha parties, was worked up to the Claire Belle ground.

Grand Junction.—The main shaft is now down 150 ft. A drift has been run to the east wall 81 ft. and to the west 60 ft. The ore is free milling. It is asserted that Montana parties have practically purchased the mine.

Monarch Mining Company.—Capital stock, $100,000; F. C. N. Graydon, formerly of Chicago, now of Custer, is the principal promoter. The company will open the Monarch group of mica claims. The company is employing 12 men and two steam drills.

North Star.—The shaft in this mine is nearly down 300 ft. and will be sunk to the 500-ft. level, when crosscuts will be run.

Penobscot.—This old mine, which was operated in 1882 with a 25-stamp mill, has been sold to Denver parties, who will immediately clean up the old workings. The ore is not free milling.

Lawrence County.

(From Our Special Correspondent.)

American Mining Company.—The shaft in Spearfish canyon being put down by this company is 260 ft. deep. A station is being cut for a Hooker pump.

Flagstaff Mine.—Secor & Coyle, of Galena, are shipping high grade lead and silver ore from this mine, in the Galena District.

Gustin-Minerva.—The Boston-South Dakota Mining Company is running 20 stamps of the 40-stamp mill in Blacktail Gulch on free milling ore from the Gustin-Minerva mines.

Hester Mining Company.—The following officers have been elected: President, K. G. Phillips; vice-president, W. E. Adams; secretary and treasurer, William Selsbie, all of Deadwood. The company owns ground in the Galena District.

Portland District.—A large shoot of ore has been discovered at Portland, in ground belonging to the Portland Mining Company, of Clinton, Ia. A shaft has been sunk 10 ft. to the bottom of the shoot and an open cut run 70 ft. in ore. A shipment is being made to the Kansas City Smelter. The Portland companies are shipping about 100 tons of ore daily.

Prior Hill Mining Company.—The following directors have been elected: John Baker, Julius Rebsamen, J. J. Davenport, J. A. Harding and D. R. Scott, all of Deadwood.

Ruby Flat Mining Company.—This company has elected these directors: G. M. Fish, John Baker, Julius Rebsamen, Charles Hyman and D. R. Short, of Deadwood.

South Dakota Company.—It is stated that this company is about to transfer all of its mining ground at Portland and the cyanide plant at Central City, to Eastern parties.

Spearfish Gold Mining Company.—This company, recently organized by Colorado Springs men, has purchased the old Adelphi hoist. The 200-ton cyanide plant is nearly ready for the machinery.

Trent Mining Company.—The annual election gave the following officers: President, F. A. Gaskell; vice-president, Neil McDonough; secretary and treasurer, O. U. Pryce, all of Deadwood. The company's property is in Carbonate Camp and development work is soon to resume.

Pennington County.

(From Our Special Correspondent.)

Black Hills Copper Company.—This company owns a large tract of mining ground south of the British-American ground. A portable saw mill has been purchased and machinery to sink a shaft on one of the copper verticals 500 ft. deep.

British-American Gold and Copper Company.—This company has purchased a steam boiler and hoist, to develop a copper property west of Rochford, in the limestone range. A saw mill will be set up.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending July 14th there were sent forward by the different smelteries 10 cars, or 420,866 lbs.., lead-silver bullion; 5 cars, or 232,502 lbs., copper bullion. In the same week there were shipped from different camps for treatment at smelteries outside of the State 103 cars, or 4,136,735 lbs., ore.

Beaver County.

(From Our Special Correspondent.)

Imperial.—President A. B. Lewis, accompanied by the Messrs. Kirk of Chicago, have been visiting the mine, and returned East two days since. A 3-ft. body copper pyritic ore is opened, which averages 10 to 22% copper with a little gold-silver sweetening. Another vein has good showing of malachite and red oxide. Much encouragement is felt in recent improved conditions.

Carbon County.

(From Our Special Correspondent.)

Pleasant Valley Coal Company.—A proposition is made to settle for each victim killed in the Schofield tragedy of May 1st by paying $500 to the heirs, or $100,000 in all. Thus far no suit is instituted against the company. If this proposition is accepted it is said the company's loss through this catastrophe will approximate $500,000.

Juab County.

(From Our Special Correspondent.)

Tintic Shipments.—For the week of July 14th the shipments from the three rail points of the district were 3 bars of bulion, 58 cars of ore and 4 cars of concentrates, made up as follows: Centennial-Eureka, 20 cars; Mammoth, 10 cars and 3 bars of bullion; Gemini, 10 cars; Swansea, 7 cars; Uncle Sam, 5 cars; Eureka Hill, 4 cars concentrates; Alaska, Last Chance and Showers, each 1 car ore.

Mammoth.—Plans for the building of a wire tram from the mine to the mill are side-tracked, if not abandoned, and the New East Tintic continues to haul ore to the mill. President McIntyre intimates there is liable to be no change, and that a $20,000 dividend will be paid about August 1st.

Summit County.

(From Our Special Correspondent.)

Park City Shipments.—For the two weeks ending July 14th the ore and concentrate products sent from the camp aggregated 6,942,230 lbs., contributed as follows: Silver King, crude 2,469,390 lbs., concentrates 261,890 lbs.; Daly-West, crude 1,216,940 lbs., concentrates 1,301,340 lbs.; Anchor, crude 157,630 lbs., concentrates 829,780 lbs.; Ontario, 609,790 lbs.; Loring Bros., concentrates 95,470 lbs.

Crown Point-Ontario.—Motion for a new trial is filed by Crown Point in the trespass suit which was tried last month.

Ontario.—On July 12th there were 18 bars of silver, weighing 21,708 fine oz., sent forward. The previous consignment was on June 20th, about the same amount.

Tooele County.

(From Our Special Correspondent.)

Chloride Point.—The mill is in commission and Manager Duncan says it is effecting a cleaner extraction than formerly.

Consolidated Mercur Gold Mines Company.—It is decided to bring about the union of the Mercur and De La Mar mines through the medium of a new company, under this caption, which will be a New Jersey corporation. There will be 1,000,000 shares, par $5. Other details will be as before announced. Probably the consolidation will be consummated while Captain De La Mar is here.

Daisy.—Receiver Moon is granted permission by the court to borrow $5,000 to resume operations. If these receiver's certificates cannot be turned into cash the property will be sold.

FOREIGN MINING NEWS.

AUSTRALASIA.

Western Australia.

Gold exports, including gold sent to the Perth Mint, in June are reported at 136,767 oz. crude. For the six months ending June 30th the total was 758,304 oz. crude, which compares with 709,796 oz. last year; showing an increase of 48,508 oz., or 6.8%. The total this year was equivalent to 678,451 oz. fine, or $14,023,577.

CANADA.

British Columbia—Caribou District.

Caribou Consolidated Hydraulic Mining Company.—A cone-shape gold brick 13 in. high and 34 in. in circumference, weighing 7.897 oz., and valued at $135,275, was received at the New York branch of the Bank of Montreal on July 17th, and went to the assay office. The lump, which is probably the largest ever received in New York, comes from the company's mine at Quesnelle Forks and, it is said, represented the first clean-up of this year, being the result of 62 days' washing.

British Columbia—East Kootenay District.

(From Our Special Correspondent.)

North Star.—During June the management shipped 2,000 tons of ore, valued at $28,000. The Sullivan shipped 700 tons valued at $9,800. During the same period the St. Eugene shipped 1,800 tons of concentrates, valued at $25,200, making a total from East Kootenay for June of 4,500 tons, valued at $63,000.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Rossland Ore Shipments.—The output from Roseland mines for the 6 months and 12 days ending July 12th amounted to 78,000 tons.

I. X. L.—The management has for some time been working a 3-ft. ledge of high grade ore which is partly free milling averaging $76.25 per ton. The management recently shipped two lots of ore the gross value of which amounted to $7,496 gross, or $4,776 net.

Kenneth.—This Nelson company, formerly known as the Tamarac, some weeks ago announced an extraordinary general meeting to be held July 13th for the purpose of voluntary reconstruction, Arthur Marsh of Rossland is liquidated. The company intends to adopt its old name, the Tamarac. It owns property in Ymir Division. Mismanagement is alleged.

Le Roi No. 3.—The Nickel Plate, Orenogo (which is a fraction lying to the north and adjoining the former), the Golden Chariot adjoining the Nickel Plate on the east, the Great Western adjoining the latter, and the Golden Daun, a contiguous property belonging to the British American Corporation, was recently floated in London as the Le Roi No. 3. The capital stock is divided into 100,000 shares of the par value of £5 each. The greatest amount of development work has been done on the Nickel Plate, where one of the main veins has been cut at various depths running from 200 to 600 ft. The work done on the other properties is slight.

Phoenix.—The first shipment of ore has been made to the Granby smelter at Grand Forks from the Old Ironsides and Knob Hill mines. Five carloads, amounting to 125 tons, were shipped on July 11th.

There is a scarcity of cars, but the daily output for the present will amount to 5 cars. About 8,000 tons are ready for shipment.

Silver Queen.—Public notice has been given of special general meeting Slocan, at Rossland, July 23d for the purpose of winding up the company, which has gone into voluntary liquidation. Mr. R. W. Grigor, of Rossland, has been appointed liquidator. The company owns 8 claims comprising 200 acres on Cariboo Creek. Mismanagement is alleged.

British Columbia—Yale District.

(From Our Special Correspondent.)

Iron Mask.—Recent development disclosed the hanging wall showing the vein to be 50 ft. wide. The management has decided to sink at once.

Ontario-Michipicoten Iron District.

(From Our Special Correspondent.)

Algoma Central Company.—This company is shipping its first cargo of iron ore from its Helen Mine, 125 miles north of Sault Ste. Marie, Lake Superior. The Helen Mine, briefly, is an outcrop lying between characteristic rocks of the Lake Superior iron bearing region. It is 12 miles from and 640 ft. above the lake at Michipicoten Harbor and the exposed portion of the deposit is about 400 ft. wide and 700 ft. long. In this distance it rises 120 ft. At the foot of the bluff tunnels have been driven into the bluff 240 ft., reaching the counter rock. At the west end the ore body extends under the lake to its deepest point, 125 ft. below water level. This lake can be drained by a short tunnel. The company estimates that it has 15,000,000 tons in sight by measurements and diamond drill borings, with 200 ft. of ore below the lake level, and when borings were discontinued the coves were still ore. The full extent of the deposit is therefore unknown. Its width of 400 ft. does not include a strip nearly half as wide of a lower grade soft hematite economically valuable only when transportation costs are not great. The company expects to utilize this at its works at Sault Ste. Marie, Ont.

The Helen Mine, being an open quarry on a side hill, with an earth covering varying from nothing to a few feet, will be at first worked cheaply. The company has installed a No. 8 Gates crusher capable of breaking at least 5,000 tons per day, and will at once erect a duplicate plant. The crushers will be fed by Lidgerwood cableways from the mine faces.

The company has received two 2,200-ton English-built ore skips and will have two more within 10 days. It will build four more of 3,000 tons each for next year. It is receiving a heavy equipment of locomotives and cars and dumped its first 50-ton cars into its dock last Saturday. A large block of ore for this year's delivery is sold to Midland & More.

NEWFOUNDLAND.

According to a St. John's dispatch, mining companies at Belle Island have been obliged to

close down work indefinitely, as it is impossible for them to secure any more laborers. The strikers are apparently more determined than ever. Since their leaders were placed under arrest schooner loads of strikers have arrived from other sections, thus swelling the numbers of men who refuse to work unless the terms agreed upon by the majority are granted. The police have been withdrawn and the men are reported peaceful.

R. G. Reid, whose railroad and mining contracts in this colony have attracted wide notice, recntly proposed to transfer the franchises he holds to a limited liability company, with a capital of $25,000,000. He applied to the Government for permission to effect the transfer—a permission rendered necessary by the terms of his contract with the Government. The Cabinet refused to give its sanction unless Mr. Reid would agree to amend the contract, giving up several very valuable franchises, and a deadlock has ensued. Mr. Reid has suspended all operations except those required under the most literal interpretation of the contract of operating the railway. Hundreds of operatives have been discharged, and the work will be at a standstill till the Government yields.

SOUTH AMERICA.

British Guiana.

The total gold output reported for May, on which royalty was paid, was 10,730 oz. This compared with 11,884 oz. in May, 1899, showing a decrease of 1,154 oz., or 9.7%, this year.

COAL TRADE REVIEW.

New York. July 20.

Anthracite.

The usual dullness of the hard coal trade during the summer months continues, but the output continues heavy for the season, prices are as well maintained as they have been, and if no labor troubles arise it is quite possible that the total output of the collieries this year may equal last year's figures.

In spite of the advance of 25c. per ton July 1st there is little improvement in the demand for coal in the West, consumers at the head of the lakes taking their time before placing orders and those in Chicago territory showing but little more desire to buy. At the lower lake ports trade is quiet. The lake freight from Buffalo to Chicago is now 50c., and may go lower. In the East a considerable amount of coal is going into storage at various ports. The outlook for a general strike is perhaps no more threatening than it has been, but the labor agitators are busy, and as has been said in this column before, there is a good possibility of trouble by September. With ocean freights at their present low figure one would anticipate a considerable movement of coal down East, but hard coal buyers are prone to wait, and last year's lesson may be repeated.

The list prices for free burning authracite f. o. b. New York Harbor ports are: Stove and chestnut, $4; egg, $3.75. The selling prices are often the old figures of $3.30@$3.5 for egg; $3.50 @$3.70 for stove and chestnut.

The Schuylkill Coal Exchange states that its average obtained from the collieries drawn to return rate for stove coal sold at the collieries in June was $2.43 per ton and the rate of wages for the last half of June and first half of July is 2% below the $2.50 basis.

Bituminous.

The seaboard bituminous trade is active in some territories, but slow in others. There is a fairly good demand for coal, particularly for the best grades purchasable, some concerns reporting a slight shortage in these grades. The movement of coal is still hampered at the lower ports, where we hear of vessels being detained 2 or 3 weeks.

The George's Creek strike is still on, with little or no change in the situation. The operators remain firm, and it is now stated that they may decline to pay 55c. per ton for mining if the men do not return to work soon, on the ground that the best part of this season's business has been taken by operators in competing fields.

Trade in the far East is fairly active, and considerable coal is being shipped there. There is also a fair demand along Long Island Sound, where a fight between 2 transportation companies has reduced the freight rate to 35c. a ton delivered from New York to New Haven. According to various reports we have received this rate must be 5c. to 10c. below cost. Other transportation companies, better able to stand a fight, are standing aside and watching the fray. It is quite possible that the low freights may lead to a considerable movement of coal to Sound ports in a short time. Trade at New York Harbor is dull, but is improving. All-rail trade is fair, but prices are well maintained.

Transportation from mines to tidewater has been poor, but shows improvement. Car supply has been short, being controlled largely by the dispatch given by shippers in unloading cars at tide. The railroads, however, are taking hold of the matter and are requiring speculators, small shippers and those detaining cars regularly to pay freight in advance and also give the name of the consignee and amount of consignment before the coal is forwarded. This action is likely to bring results.

The coastwise vessel market shows vessels in fairly good supply, with freight rates weak and few orders. We quote as follows from Philadelphia: Providence, New Bedford and the Sound, 65c.; Boston, Salem and Portland, 70@75c.; Wareham and Bangor, 85@90c.; Lynn, 85@90c.; Newburyport, 90c.; Bath and Portsmouth, 75@ 80c.; Dover, $1@$1.15 and towages; Saco, 90c.@$1 and towages, with 10c. above these rates from Chesapeake Bay ports.

Regarding foreign freight rates we note that a number of steamers have been chartered for Mediterranean ports recently at 17s. 6d. ($4.20). including one of 5,000 tons. It is also reported that 17s. 4½d. ($4.17) has been refused for August loading from Baltimore to Leghorn, while small lots of coal have been taken as follows: 500 tons alongside New York to Venice, 16s. ($3.84), 1,000 tons alongside New York to Marseilles, 15s. 6d. ($3.72); 2,200 tons alongside New York to Genoa, 15s. 9d. ($3.78). The charter of a sailing vessel from New York to Genoa is reported at 15s. ($3.60). It is stated that charters from Baltimore or Philadelphia to London can be had for 16s., but all export freights are likely to go higher in view of the Chinese situation.

We quote Clearfield coal at New York Harbor ports at $2.35@$2.65 per ton.

Birmingham, Ala. July 16.

(From Our Special Correspondent.)

The coal market is again on a boom in Alabama and there cannot be enough coal mined to supply the demand. The contracts between operators and miners at the smaller mines are being signed up and one by one they are returning to that condition which prevailed just a month ago. There is much coal being mined and it is estimated now that the output for the year will be no less than 9,000,000 or 10,000,000 tons, against 7,484,778 tons last year. It is estimated that the output for the first six months of the year amounted to over 4,000,000 tons.

More coal companies are being organized in this State, the Elk River Coal Company being the latest. This company will have a capital of $30,000 and the old McDonald mines, near Carbon Hill, in Walker County, have been secured. The Bessemer Land and Improvement Company, operating the Belle Ellen Mines, in Bibb County, is opening three new, large mines just 2 miles from the present mines. The Southern Railway is constructing an extension in order to furnish transportation for the product of the new mines. The Empire Coal Company of Alabama, which was incorporated a few weeks ago and which has purchased 14,000 acres of valuable coal lands in Walker County, will begin within the next few weeks the active development of the property. The Stout Mountain Coal Company is preparing to develop the property in Blount County, while the Underwood Coal Mining Company will shortly be in a position to place coal on the market.

Chicago. July 17.

(From Our Special Correspondent.)

Anthracite Coal.—The business transacted during the past week in anthracite coal has been necessarily limited, the advance of 25c. per ton having already had the effect of almost killing business. What little coal is moving is bought evidently from sheer necessity, both city and country trade having been limited to private lots. Shippers are not looking for any improvement soon. Anthracite circular prices are: Grate $5.25, egg, stove and chestnut $5.50.

Bituminous coal.—Soft coal has been in slightly better demand and conditions are favorable for a continued improvement, manufacturing lines having bought more freely during the week. Prices have not sagged any further and now appear to have gone as low as policy permits. Some soft coal prices are: Brazil block, $2.50; Hocking Valley, $2.85; Wilmington, $2.50; Pocahontas, $3.75; Raymond, $3.25.

Cleveland, O. July 17.

(From Our Special Correspondent.)

The shippers won a signal victory this week when they forced a general break in the coal carrying rates. Some few weeks ago the shippers asked for a 40c. rate between Cleveland and Duluth. The owners refused. Then the shippers tried to persuade them by taking outside boats at that price. The vessel men entered a compact to take no more coal to Duluth until the rate should be 50c., the contract price. The shippers in their turn entered a compact to pay no more than 40c. With the aid of several outside vessel owners the shippers have won their fight and now the Duluth rate has been established at 40c., a reduction of 10c. This gave the shippers a taste for war and they went in to bear the Lake Michigan rate. It took but one day to settle this, for Milwaukee and Chicago at once dropped to 50c., a reduction of 10c. Portage followed with a reduction from 50c. to 40c., making the change of rates complete. The shippers are now on the market for boats and have not only the advantage of getting as many as they want, but are in a position to dictate not only where the boat shall be loaded, but how much she shall carry and at what freights. The withdrawal of the big tonnage from the wild ore trade will throw it into grain and coal and may make a material reduction in the rates on both of these. The movement of coal continues heavy, the product coming freely from the mines and not being hampered by a lack of cars. The rates now for carrying are: Duluth 40c., Portage 40c., Milwaukee and Chicago 55c.

Pittsburg. July 19.

(From Our Special Correspondent.)

Coal.—The heavy demand for coal continues and the different companies are endeavoring to fill their contracts, but are handicapped greatly by a shortage of miners and transportation facilities which have not been satisfactory. Despite the fact that the railroads have been able to turn over to the coal companies the cars that were formerly used by the iron and steel industries, more cars could be used. During the week about 200 diggers from the anthracite coalfields came into the Pittsburg District and were promptly put to work in the railroad coal mines here. There is no lack of business for the two large coal combinations and the individual concerns and it is impossible to take care of all the inquiries for export trade.

Connellsville Coke.—The heaviest decrease in both production and shipments occurred last week and prices are lower. Furnace coke is quoted as low as $2.25 and less is offered. Foundry coke ranges from $2.25 to $2.50. The production last week was 161,356 tons, a decrease of 22,149 tons compared with the previous week. Of the 20,341 ovens in the region 16,194 are active and 4,147 idle, an increase of 289 idle ovens. The shipments were 8,119 cars, a decrease of 1,547 cars, distributed as follows: To Pittsburg and river tipples, 2,595 cars; to points west of Pittsburg, 4,038 cars; to points east of Connellsville, 1,486 cars.

SLATE TRADE REVIEW.

New York. July 20.

There is little to note in the general condition of the market. Things are quiet, with nothing to show that there is any improvement coming soon. One or two concerns are doing some foreign business, but the attitude of the Welsh slate men, who are reported as ready to cut prices to any extent necessary to keep out American slate, and the uncertaintities regarding vessel freights which may go to extreme figures, are likely to keep down any export movement.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries in car-load lots, is given below:

Size, inches	Monson or Br'nville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	6.50	3.50	3.00	3.25	3.10	5.10	3.15	.	.....
24 x 12	6.60	3.50	3.00	3.25	3.10	5.25	3.15	3.75	.....
22 x 12	6.60	3.50	3.25	3.50	3 25	5.25	3.15	3.75	.....
22 x 11	6.50	3.75	3.25	3.50	3.25	5.25	3.15	4.00	.....
20 x 12	6 90	3.75	.....	3 50	3.25	5.25	3.15	3.75	.....
20 x 11	6.80	.....	.....	3.75	3.50	5.25	3.15	....	.. ....
20 x 10	6.80	4.25	3.50	3.75	3.50	5.35	3.15	4.25	10.50
18 x 12	6.80	3.75	.....	3.50	3.25	5.25	3.15	3.50	.....
18 x 11	7.00	....	....	....	....	....	3.15	3.75	.....
18 x 10	7.00	4.25	3.50	3.75	3.50	5.35	3.15	4.00	10.50
18 x 9	7.00	4.50	3.50	3.75	3.50	5.35	3 15	4.25	10.50
16 x 12	6.80	3.75		3.50	3.25	.....	2.95	3.50	....
16 x 10	7.00	4.25	3.50	3.75	3.50	5 25	2.95	4.00	10.50
16 x 9	7.00	4.25	....	3.75	3.50	5.35	2.95	4.25	10.50
16 x 8	7.00	4.50	3.50	3.75	3.50	5.35	2.95	4.25	10.50
14 x 10	6 60	3.75	3.25	3.25	3.25	5 25	2.85	3.75	10.50
14 x 9	6.50	....	....	.....	....	....	2.85	3.75	10.50
14 x 8	6.60	3.75	3.25	3.25	3.10	5.10	2.85	4.25	10.50
14 x 7	6.40	3.75	3.25	3.25	3.10	5.10	2.60	4.25	10.50
12 x 10	5.75	....	....	....	.....	....	2.60	3.25	.....
12 x 9	5.60	....	.....	....	.....	....	2.60	3.25	.....
12 x 8	5.50	3.50	.....	3.00	2.80	4 85	2.60	3.50	9.00
12 x 7	5.00	3.25	.....	3.00	2.80	4.85	2.50	3.50	9.00
12 x 6	4.80	3.25	.....	3 00	2.80	4.75	2.50	3.50	8.50

A square of slate is 100 sq. ft. as laid on the roof

Another company has been formed to utilize slate refuse. The Peach Bottom Cement, Tile and Brick Company, with a $250,000 share capital, divided into $25 shares, will undertake the manufacture of Portland cement, sewer pipe and fire brick from slate refuse at Delta, Pa., and in Hartford County, Maryland. A cement plant, with 250 bbls. daily production and brick works costing about $60,000 are to be erected in the Peach Bottom slate region. Another $100,000 of the share capital will be used in acquiring

slate deposits, a limestone quarry, processes for manufacturing, etc., and $40,000 will be the cash working capital. The headquarters will be in Baltimore, Md., and the officers are Benjamin Wallis, president; Alvin Coriell, vice-president, and James E. Brady, secretary and treasurer. The enterprise will be watched with interest, as similar attempts to utilize slate refuse have been unsuccessful.

IRON MARKET REVIEW.

NEW YORK, July 20, 1900.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending July 21, 1899. F'ces.	Tons.	Week ending July 20, 1900. F'ces.	Tons.	From Jan., 99. Tons	From Jan., 00. Tons.
An' racite & Coke.	204	258,500	257	276,875	8,010,563	8,244,423
Charcoal.	20	6,250	22	5,950	168,790	197,977
Totals.	224	264,750	279	282,825	8,179,353	8,442,400

The iron market continues to wait on further reductions. From the developments at Pittsburg it seems probable that $16 for Bessemer pig and $22 for steel billets are in sight, with corresponding reductions on finished material. Some authorities even put $15 and $20 as the limits.

The only section of the market showing much activity is structural material, where a good business has been done. Taking this as a text some good authorities look for a large business soon, though others are very doubtful, and thing that no reduction will stimulate the market at present.

There is talk of conferences among the steel men to control or stop the downward tendency of prices, but nothing has been done in this direction.

The lower quotations have stimulated export inquiries and many are coming in for finished material, as well as for pig iron and billets.

At a meeting of the Ore Association, held in Cleveland, it was decided that no change should be made in prices of ore for delivery this year.

Birmingham, Ala. July 16.

(From Our Special Correspondent.)

Quietness reigns in the Alabama pig iron market, but still the production is quite active and shipments are right brisk. There is, however, some accumulation of iron on the furnace yards.

The export trade is looking up some, whether it is on orders accepted some time since or on new business cannot be ascertained. It is noticeable, however, that there has been a little rush in the export movement quite recently and considerable iron has moved out for foreign shipment.

The local demand for the product is not what it has been at times this year. While pipe works at Bessemer and North Birmingham are continuing in blast and many of the smaller iron-using plants in the district are running on, the rolling mills are idle. The mills at Bessemer, belonging to the Tennessee Coal, Iron and Railroad Company, will probably resume operation this week or the first of next. The Birmingham and Gate City mills will not be ready to go in blast for some little time yet. Nothing can be learned here definitely as to when the scale of the Amalgamated Association of Iron, Steel and Tin Workers would be signed and not until then will the mills hereabout get back into operation. The stock on hand is being reduced slowly.

The following are the quotations for iron; No. 1 foundry, $15@$15.50; No. 2 foundry, $14.50@$15; No. 3 foundry, $13.50@$14; No. 4 foundry, $13@$13.50; gray forge, $12.50@$13; No. 1 soft, $15@$15.50; No. 2 soft, $14.50@$15. These prices are said to be a little high and during the past week it was heard that gray forge had gone down under $12 to $11 per ton.

Buffalo. July 18.

(Special Report of Rogers, Brown & Co.)

The iron market in this vicinity shows little if any change, with the possible exception of an increase in the number of inquiries received, which seems to demonstrate the fact that the larger buyers realize that prices cannot go much, if any, lower and a nervous anxiety to get in on the ground floor when prices have reached their lowest limit and the upward movement begins. Foundry yards are almost bare of iron, and, owing to the fact that a number of stacks have blown out, the output in this territory has been decreased to a considerable extent, one furnace being entirely sold up on one of the higher grades and unable to supply any of the grade referred to until the middle of next month. We quote on the cash basis, f. o. b. cars Buffalo: No. 1 Strong Foundry Coke Iron, Lake Superior ore, $19@$19.50; No. 2, $18@$18.50; Southern Soft, No. 1, $19.50@$20; No. 2, $19@$19.50; Lake Superior Charcoal, $21.50; Coke Malleable, $19.25@$19.75.

Chicago. July 17.

(From Our Special Correspondent.)

Pig Iron.—The business in pig iron has not been large, small buying having been the order of the week. Uncertainty as to future prices keeps many out of the market, there being much of a difference in opinion as to present as well as future prices. The market has not been strong, prices having sagged slightly, but there is a little better feeling shown. There is inquiry coming in for iron as far ahead as a year, implement and other users of pig iron testing the market, as is usual with them about this time each year. No business has as yet been closed for more than 3 months ahead. Prices are as follows: Lake Superior charcoal, $22@$23; local coke foundry No. 1, $19@$19.50; No. 2, $18.50@$19; No. 3, $17.50@$18; local Scotch No. 1, $19@$20; Ohio strong softeners, No. 1, $20@$21; Southern silvery, according to silicon, $21.35@$22.35; Southern coke, No. 1, $19.35@$20.35; No. 2, $18.35@$19.35; No. 3, $17.35@$18.35; Southern, No. 1 soft, $19.35@$20.35; No. 2 soft, $18.35@$19.35; malleable Bessemer, $20@$21; standard Bessemer, $21.50@$22.

Cleveland, O. July 18.

(From Our Special Correspondent.)

Iron Ore.—A situation which is slightly discouraging to the vessel owners has just developed. Orders were received by some prominent shippers yesterday from the head of the lakes to take no more wild tonnage for the present. Whether this condition is to be permanent is conjectural, but it shows that the shippers are in an easy position as to the movement of their stuff. The number of shippers who have been taking wild ore this year is not large, but even those who have are now compelled to abstain from taking more boats for fear of exceeding the amount they are to send down the lakes this year. This will leave employment for the contract boats only and will throw that wild carrying capacity entirely into other trades. The effect can be but one thing—a further reduction of freights. The sudden curtailment of the ore movement is indicative of the demand for the product and shows how far the shutting down of furnaces has affected the ore movement. The thing which is the most important factor in this movement is the prediction which it makes that the Rockefeller endeavor to control the lake ore rate has failed. When the movement was stopped prices remained as they have been—$1 from Duluth, 90c. from Marquette and 70c. from Escanaba.

Pig Iron.—This has been a very quiet week in pig iron. The sales have been very slow, attributable to the continuation of the strike among the moulders. This is cutting down the amount of iron used. While its effect is felt over a wide territory it is not general because some buyers who have contracts are still taking their stuff regularly and other concerns are buying, although in small lots. The prices at which these minor sales are being made are about $16.

Finished Materials.—Plates and bars, which are now bringing the same prices, are away off. The quotation this week has been 1.25c., which is a material decrease from last week. The other grades of steel, with the possible exception of billets, have been quoted at the prices agreed upon some time ago. Billets are now bringing $21, with some sales at less than that. There is an immense demand for bridge material, which seems to be the strongest grade in the market. Beams and channels and all structural shapes, with a possible exception of small angles, are being quoted at 1.90c. for beams and channels and 1.80c. for angles. The discrepancy between the price of this grade and plates and bars has led some to believe that the steel men are trying to freeze out the smaller concerns which commenced making plates a year ago and increased the capacity sufficiently to make a difference in the market now. It is known that the lowering prices have made it necessary for some mills to suspend action for the time being.

Philadelphia. July 19.

(From Our Special Correspondent.)

Pig Iron.—Quotations are refused to-day by some leading makers and agents, except to actual buyers. There has been some business through the Schuylkill Valley of small emergency lots at prices which are a trifle under bottom published quotations. Foundry Nos. 1, 2 and plain are selling somewhat better, but there are no large dealings and will be none until prices are definitely fixed. Gray forge can be had at $15, No. 2 plain not far from that price, No. 2 at $16@$17 and No. 1 at $18; but the best quotations count for little. Foundrymen are taking more interest in the market than they have for some weeks.

Billets.—Consumers have had offers under consideration since July 1st, but to-day they were unable to say whether they would be able to buy on their terms or not. There would be no difficulty in getting a few big contracts out of this territory if prices suited.

Bars.—All the mills are idle. Resumption is probable next week in two or three that have been heard from. The demand since July 1st has not been of such force as to hurry resumption and prices are low.

Sheets.—Resumption takes place soon and it is understood that the output of eastern capacity will be easily marketed, prices having been definitely fixed.

Merchant Steel.—The formation of the crucible steel trust will eliminate some wabbling on prices which the great producing capacity of that branch of the steel trade has been creating. Our local agents have not been selling much stuff, but they say that machinery, tools and general shop equipment requirements will be heavy.

Plates.—Our local plate manufacturing interests have not added materially to their autumn work. Since July 1st the demand for boiler plate is all right and boiler yards generally have their hands full. Prices are under 1.40c. for steel tank and competition from the West is felt.

Structural Material.—The general statement given out is that the usual amount of autumn and winter work is being worked up and the indications are that at the drop announced a few weeks ago, which railroad and other people regard as bottom, will result in the placing of enough business to keep our mills busy.

Steel Rails.—There is something going on. Some say a big drop in rails is close at hand.

Scrap.—Heavy steel and choice railroad scrap is salable at any time, but no earnest efforts are apparent by either buyer or seller just now.

Pittsburg. July 18.

(From Our Special Correspondent.)

The iron and steel markets are not as active as was expected a week ago and prices are a trifle lower in some lines. There has not been enough buying to fix a definite price on iron and steel. Consumers are only contracting for their immediate requirements and all orders received during the week were for prompt shipment. Bessemer pig is quoted at $17 in the valleys and $17.90, Pittsburg, but it is believed $1 lower could be done.

Bessemer steel billets sold at $22 and this price means $16 pig iron, as the difference is usually $6 a ton. Steel bars and plates are lower and a further cut is believed to be improbable. Sheets seem to be stiffer, but this is evidently caused by the almost general suspension of operations of the mills on June 30th. The demand for merchant steel shows a decided improvement. There are rumors of a meeting of representatives of the leading steel interests during the week for the purpose of adjusting prices and arranging for curtailing production, but no definite information has yet been given out. The big steel plant of Singer, Nimick & Company is in full operation to-day. Several departments went on Monday morning and the remainder this morning. This concern is in the Crucible Steel Company of America, the new combination of crucible steel interests now being formed. The five sheet mills at the Republic Works of the National Tube Company, on the South Side, were started on Monday morning. These mills are not in the trust. The Amalgamated Association wage scale was signed and the same wages are being paid as will be at the union mills of the American Sheet Steel Company. Several of the non-union plants of the combination have been put in operation within a week, the principal one in this district being the new plant at Scottdale. Puddling Mill No. 4 of the National Tube Company's rolling mills at McKeesport resumed on Monday, after a long idleness. This mill has been operated but 2 months out of the last 12. The small independent tin plate plant at Washington, Pa., has resumed after a short idleness, the union wage scales having been signed. The iron and tin-plate scales of the Amalgamated Association have not yet been agreed to by the combinations and no date has been arranged for further conferences on wages. The membership is now voting on the question of adhering to the original demand in the tin-plate and iron mills or accepting the proposition of the manufacturers, which is practically for a continuance of last year's wages. In the tin-plate scale the workers ask for a reduction of the base from $4.25 to $4 a box and in the iron scale they want the base advanced from 1.4c. to 1.5 c. The manufacturers insist on the former base for both scales.

It is reported here that there is likely to be trouble between the Bessemer Furnace Association and several steel combinations over some heavy undelivered orders for pig iron. During the early part of the year, when iron was high, a number of contracts were made for future delivery. Among them were orders aggregating between 50,000 and 75,000 tons, to be delivered during the early part of the third quarter. The price for this iron then ranged from $23 to $24 a ton. Now pig iron can be had at $17, and it is reported that the contracting concerns have refused to take high-priced iron by declining to name a destination to the furnace association. The principal purchaser is said to be the American Steel and Wire Company, which is reported to have contracted for 20,000 tons. It is proposed

to force the purchasers to take the iron at the price contracted for, and the courts will be resorted to if necessary.

The incorporators of the new Crucible Steel Company of America met July 18. A number of unsettled details are being arranged. It was stated that the election of officers will not be held at present.

Pig Iron.—There were no sales of importance during the week. Several small lots for prompt shipment brought $17, Valley. It is believed for a good order $16 could easily be done. Foundry No. 2 is down to $16, Pittsburg, and gray forge can be had at $15.50 and probably less.

Steel.—A large number of inquiries were received this week for Bessemer steel billets and several sales of 200 and 300 ton lots were made at $22. All were for immediate delivery. It is believed that for a desirable order $20 would be the price. Steel bars are lower this week and are quoted at 1.15@1.20c. These prices are for large orders. Tank plates have also been cut and are now quoted at 1.20@1.25c.

Sheets.—There is a slight improvement in sheets this week. The American Sheet Steel Company is quoting No. 28 gauge at 3.20c. and No. 27 at 3.10c., but it is believed that lower rates can be obtained from independent concerns. The demand for galvanized sheets is better than last week and are quoted at 70 and 10% off, with the usual 15c. freight allowance.

Ferro-manganese.—The price remains the same as last week—$85@$100 for 80% domestic.

New York. July 20.

The local iron market is fairly strong in some spots and in others weak. There is a fairly good demand for foreign delivery. We note shipments of machinery to England worth over $200,000; shipments of over $35,000 worth of machinery and $25,000 worth of iron pipe to Japan; shipments to Argentina of $18,000 worth of rails and $15,000 worth of manufactured iron; and continued shipments of agricultural machinery and machine tools to France and Germany.

Pig Iron.—Prices for Northern irons still show weakness, while Southern irons are practically out of the market, owing to the decided difference in price. We quote for Northern irons, tidewater delivery: No. 1 X foundry, $17.25@$18.25; No. 2 X $16.50@$17.25; No. 2 plain, $16@$16.50. For Southern irons on dock, New York: No. 1 foundry, $20.25@$20.75; No. 2, $19@$19.50; No. 3, $17.50@$18.25; No. 1 soft, $20.25@$20.75; No. 2, $19@$19.50; gray forge, $16.50@$17.

Bar Iron and Steel.—The market continues weak and prices are still unsettled. Common bars are quoted as low as 1.40c. for large lots on dock; refined bars, 1.45c.; soft steel bars, 1.40c.

Plates.—Business, if anything, shows improvement, and some good inquiries are reported from abroad. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 1.40@1.45c.; tank, 3/16-in., 1.50c.; shell, 1.55c.; flange, 1.65c.; marine, 2.10c.; universals, 1.40@1.45c.

Steel Rails and Rail Fastenings.—There is no change in prices by the Eastern mills yet and we continue to quote: $35 f. o. b. Eastern mills. Smaller rails are quoted: 12-lb., $40; 16-lb., $40; 20-lb., $40; 30-lb. to 40-lb., $38; 40-lb. to standard, $36, with the usual advance for small orders. We quote angle bars, 2.20c.; fish plates, 2.15c.; spikes, 2.20c.; bolts, 3.20c.

Structural Material.—Demand continues very fair. We quote in large lots at tidewater: Beams, 2.10c.; channels, 2.10c.; angles, 2c.; tees, 2.15c.; zees, 2.10c.

Cartagena, Spain. July 2.

(Special Report of Barrington & Holt.)

Iron and Manganiferous Ores.—During the month of June 19 cargoes of iron ore have been shipped from this port, 12 of which were of dry ore, 6 of manganese and 1 of 60% magnetic ore. This latter is the first cargo produced from the mines in the Calasparra District since they were taken up by this firm. They are now in a full state of development and producing 5,000 to 6,000 tons per month. There is a considerable demand for this ore, both for the Continent and the United Kingdom. The local position of our market continues unchanged, and although there is a falling off in the prices on the other side, the prices for iron ore here are as firm as ever, and a very keen competition continues in the Sierra. Several new contracts are reported for July-December shipment for dry ore at, however, about 6d. per ton lower price than the rates paid during the first six months of this year. Freights have been very high all round, and tonnage seems difficult to secure. Cartagena-Maryport, 11s.

Quotations are, for iron ores: Ordinary 50% Portman, 7s. 6d.@8s. per ton; low phosphorus, 7s. 10d.@8s. 6d.; special ore, 9s.; specular, 60%, 11s. For manganiferous ores we quote: No. 1, 20% Fe and 20% Mn., 15s. 6d.; No. 1 B, 25% Fe and 17% Mn, 12s. 6d.; No. 2, 30% Fe and 15% Mn., 12s.; No. 3, 35% Fe and 13% Mn., 10s. All prices are f. o. b. shipping port, buyer to pay any new tax that may be imposed.

Other Exports.—Other exports in June included 300,000 kgs. ocher to Swansea; 200,000 kgs. ocher to Bristol; 75,000 kgs. iron pyrites to Marseilles; 6,500 kgs. old iron to Marseilles

METAL MARKET.

NEW YORK. July 20.

Gold and Silver.

Gold and Silver Exports and Imports
At all United States ports in June and year.

Metal.	June.		Year.	
	1899.	1900.	1899.	1900.
GOLD.				
Exports	$20,908 327	$8,092,738	$27,553,324	$30,423,212
Imports	3,105,686	1,984,849	23,387,647	14,854,661
Excess	E.$17,802,641	E. $6,107,889	I. $4,165,677	E.$15,568,551
SILVER.				
Exports	3,843,299	5,187.920	27,119,948	30,372,286
Imports	1,895,393	4,879,970	14,436,715	18,673,322
Excess	E. $1,947,906	E. $307,950	E.$12,683,233	E.$11,698,96

This statement includes the exports and imports at all United States ports, the figures being furnished by the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending July 19th, 1900, and for years from January 1st, 1900, 1899, 1898, 1897.

Period	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports	
We'k	$1,631,282	$850	$639,240	$16,552	E. $2,253,120
1900..	22,216,574	1,579,158	22,236,390	2,420,695	E. 40,453,111
1899..	11,424,967	7,371,726	15,492,017	1,873,452	E. 17,671,806
1898..	4,534,463	69,018,025	18,559,573	1,893,956	I. 47,817,945
1897.	11,968,564	1,985,472	27,817,041	1,571,566	E. 34,228,567

Exports of gold went chiefly to France; those of silver to England. Imports of gold and silver were from the West Indies.

The United States Assay Office in New York reports the total receipts of silver at 96,000 oz. for the week. Total since January 1st, 2,741,000 oz.

Average Prices of Silver per oz. Troy.

Month.	1900.		1899.		1898.	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January...	27.30	59.30	27.42	59.36	26.29	56.77
February..	27.49	59 76	27.44	59.42	25.89	56 07
March. ...	27.59	59.81	27.48	59.64	25.47	54.90
April.....	27.41	59.59	27.65	60.10	25.95	56.02
May.....	27.56	59.96	28.15	61.23	26 31	56.98
June	27.81	60.42	27 77	60 43	27.01	58.61
July.....	.....	.....	27.71	60 26	27.32	59.06
August....	.....	....	27.62	60.00	27 48	59.54
September	.....	.....	27.15	58.89	28.05	60.68
October ..	.....	.....	26.70	57.98	27.90	60.42
November	.....	.....	27 02	58.67	27.93	60.60
December.	....	.....	27.21	58.99	27.45	59.42
Year....	.....	.....	27.44	59.58	2.76	58.2

The New York prices are per fine ounce; the London quotation is per standard ounce, .925 fine.

Average Prices of Metals per lb., New York.

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.
Jan	15.58	14.26	27.07	22.48	4.68	4.18	4.65	5.34
Feb.....	15.78	17 02	30.58	24 20	4.675	4.49	4.64	6.28
March ..	16.29	16.35	32.90	23.82	4.675	4.37	4.60	6.31
April ..	16.76	17.13	30.90	24.98	4.675	4.31	4.71	6.67
May.....	16.34	17.20	29.37	25.76	4.181	4.44	4.53	6.88
June, ...	15.75	16.89	30 50	25.85	3.901	4.43	4.29	5 98
July.....	.....	17 10	.....	29.63	.....	4.52	.....	5.82
August..	.....	17.42	.....	31.53	.....	4.57	.....	5.65
Sept.....	.....	17 31	.....	32 74	.....	4.58	.....	5.50
October..	.....	16.94	.....	31.99	.....	4.575	.....	5.32
Nov.. ...	.....	16.49	...	28.51	.....	4.375	.....	4.64
Dec	....	15 85	.....	25.88	.....	4.64	.. ..	4.66
Year. ...	...	16.67		25.12	.....	4.47	.....	5.75

Commencing with March 17th, the prices given in the table for copper are the averages for electrolytic copper; this is the case for both 1899 and 1900. The average price for Lake copper for the year 1899 was 17.31c. For January, 1900, the average price of Lake copper was 16 33c.; for February, 16.08c.; for March, 16.55c.; for April, 16.94c.; for May, 16.55c.; for June, 16c.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .48	$ 49½
Peruvian soles and Chilean pesos	.45	46½
Victoria sovereigns	4.86½	4.88
Twenty francs	3.86½	3.90
Twenty marks	4.77	4.88
Spanish 25 pesetas	4.78	4.82

Financial Notes of the Week.

General business continues to show increased dulness, the chief factors at present being the prospect of a light wheat crop and the possible complications resulting from the Chinese business. The ease of money in New York and the high rates in Europe have lead to further gold exports, $2,000,000 going to Paris on Thursday, while it is possible that $2,000,000 more may go on Saturday.

Silver has been very steady and demand has easily absorbed the supply. The Eastern situation points to a good inquiry for the white metal.

The statement of the New York banks—in-

Imports and Exports of Metals.

Port.			Week, July 18.		Year 1900.	
			Expts.	Impts.	Expts.	Impts.
*New York.						
Aluminum.....	long tons		3	.....	85	51
Antimony ore...	"	"	.....	5	.....	1,685
" regulus..	"	"	.....	.....	.....	625
Brass.....	"	"	16	.....	16	.....
Chrome ore.....	"	"	.....	.....	.....	1,501
Copper, fine ...	"	"	17,83	658	60,642	12,455
" matte..	"	"	58	.....	2,269	77
" ore.....	"	"	.....	3,052	.....	7,536
" ash.....	"	"	.....	10	.....	74
Ferro-Chrome..	"	"	.....	.....	.....	31
Ferro-mangan'se	"	"	.....	.....	.....	342
Iron ore ...	"	"	.....	.....	.....	17,501
" pig, bar, rod	"	"	882	920	6,691	4,563
" pipe.....	"	"	39	.....	8,648	157
" plates, sheets	"	"	..	5	880	18
Lead.....	"	"	690	.....	41,741	39,281
" ore.....	"	"	.....	500	.....	8,100
" dross....	"	"	.....	.....	.....	24
Manganese, ore.	"	"	.....	.....	.....	8,614
Metals, old, scrap	"	"	73	32	2,063	4,643
Composition...	"	"	.....	.....	1,025	185
Nails.....	"	"	238	.....	13,347	.....
Nickel	"	"	23	5	1,181	72
" ore, matte	"	"	.....	.....	.....	5,334
§Railr'd material	"	"	429	50	429	2,428
Rails, old.....	"	"	517	.....	1,554	518
Spiegeleisen....	"	"	.....	50	.....	1,562
Steel bars, plates	"	"	661	379	13,848	11,340
" rails.....	"	"	1,310	.....	26 328	18
" wire.....	"	"	993	.....	15,079	.....
" not speci'd.	"	"	67	56	4,969	1,765
Tin...	"	"	80	.....	4,982	13,971
" and black plates	"	"	.....	.....	830	18,852
Zinc.....	"	"	37	.....	359	172
" dross.....	"	"	17	.....	422	50
" ashes, skim	"	"	.....	.....	732	20
" ore..... ..	"	"	.....	.....	8,073	.....
†Baltimore.						
Chrome ore.....long tons			.....	.....	.....	3,730
Copper, fine.....	"	"	722	.....	24,178	2,556
" matte...	"	"	.....	.....	.....	..
Ferro-manganese	"	"	.....	.....	.....	155
Iron pig, bar. etc.	"	"	30	758	2,935	19,811
" ore.....	"	"	.....	4,429	.....	251,144
" pyrites.....	"	"	.....	.....	.....	18.489
Manganese ore..	"	"	.....	.....	.....	89,530
Metals, old & Rails	"	"	.....	....	384	.....
Nails	"	"	.....	.....	1,206	.....
Pipe, iron & steel	"	"	221	.....	3,249	.....
Silicon ...	"	"	.....	.....	.....	85
Spiegeleisen..	"	"	.....	.....	.....	659
Steel, bars, etc..	"	"	1,031	.....	19,944	1,388
" wire	"	"	42	.....	705	95
" rails.....	"	"	931	.....	53,236	.....
Tin.....	"	"	.....	.....	.....	111
" and blackplates	"	"	.....	45	.....	1,676
‖Philadelphia.						
Antimony. ....long tons			.....	.....	.....	14
Chrome ore.....	"	"	.....	.....	.....	3,650
Copper, fine.....	"	"	.....	.....	2,552	.....
" ore.....	"	"	.....	.....	.....	21,697
Iron, pig.....	"	"	.....	330	.....	2,008
" ore.....	"	"	.....	10,763	.....	131,812
" pyrites.....	"	"	.....	.....	.....	87,455
Manganese ore..	"	"	.....	8,462	.....	67,225
Spiegeleisen.....	"	"	.....	.....	.....	3,953
Tin	"	"	.....	.....	.....	243
" and black plates	"	"	.....	.....	.....	1,981
Zinc.....	"	"	.....	.....	67	.....
" ore.....	"	"	.....	.....	2,507	.....

*New York Metal Exchange returns. †By our Special Correspondent. § Not specified. §§ Monthly returns, Treasury Department. ‡ Report of Mr. John Stanton. ‖ Week July 13th. Exports include domestic and foreign metals.

Total United States.§§

Articles.			May, 1900.		Year, 1900.	
			Expts.	Impts.	Expts.	Impts.
Antimony..	long tons		...	151	.....	973
" ore....	"	"	...	213	...	1,287
Copper, fine, in all forms	"	"	‡13,997	§83,745	‡73,643	21,393
Iron, pig & bar..	"	"	968	5,994	41.374	35,589
" ore	"	"	2,811	81,525	2,931	299,487
Iron & steel plates	"	"	8,299	161	18,182	4,521
Iron & steel rails	"	"	45,616	294	144,439	763
" " wire	"	"	9,351	117	37,080	716
Lead, pigs, bars & old	"	"	5	3	329	689
Lead in ore, etc.	"	"	6,657	5,647	35.565	34,971
Manganese ore and oxide.	"	"	.....	25,746	.....	181,472
Nickel " &matte	"	"	121	.....	925	.....
Nails, cut. ...	"	"	1,071	.....	4,600	.....
" wire ...	"	"	1,752	.....	16,441	.....
Quicksilver.....	"	"	18	.....	203	.....
Steel, billets, rods, etc.	"	"	1,573	2,235	25,542	15,913
Tin	"	"	89	3,251	216	14,772
" &black plates	"	"	85	6,181	167	28,588
Zinc	"	"	2,757	38	10,698	471
" ore	"	"	2,944	.....	14,874	.....

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c per lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c per lb. Spelter or zinc, 1½c per lb. on pigs and bars 2c. on sheets, etc Copper, tin and platinum are free of duty.

cluding the 63 banks represented in the Clearing House—for the week ending July 7th, gives the following totals, comparison being made with the corresponding weeks in 1899 and 1898:

	1898.	1899.	1900.
Loans and discounts.	$633,675,300	$776,672,200	$801,235,000
Deposits	758,068,000	886,905,800	883,489,100
Circulation	14,620,400	13,626,000	23,478,600
Reserve:			
Specie	180,498,700	176,318,200	169,700,600
Legal tenders	62,353,600	56,107,000	71,131,800
Total reserve	$242,862,300	$232,425,200	$240,832,400
Legal requirements.	189,517,600	221,726,450	220,872,275
Balance, surplus	$53,345,300	$10,698,750	$19,960,125

Changes for the week this year were increases of $1,640,300 in deposits, $286,800 in circulation, $4,886,700 in gold, $394,300 in legal tenders and $4,370,925 in surplus reserve; a decrease of $1,654,900 in loans.

The statement of the United States Treasury on Tuesday, July 3d, shows balances in excess of outstanding certificates as below, comparison being made with the statement of the corresponding day last week:

	July 3.	July 17.	Changes.
Gold	$70,511,981	$69,081,475	D. $1,430,506
Silver	15,678,947	16,920,164	I. 1,241,217
Legal tenders	26,150,623	25,530,464	D. 920,159
Treas notes, etc.	660,564	766,104	I 105,544
Totals	$113,302,115	$112,308,207	D. $993,908

Treasury deposits with national banks amounted to $103,214,860, showing an increase of $1,424,545 for the week.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding date last year:

	1899.		1900.	
Banks.	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'd.	$176,318,200	.....	$169,700,600	.....
England	161,103,300	.....	158,325,220	.....
France	381,737,735	$244,329,710	431,260,240	$228,055,665
Germany	139,680,000	71,995,000	138,805,000	71,505,000
Spain	64,800,000	67,300,000	68,445,000	84,110,000
Aus.-Hun	150,310,000	53,060,000	188,760,000	48,425,000
Neth'l'ds	15,825,000	30,575,000	24,355,000	28,315,000
Belgium	14,990,000	7,495,000	14,710,000	7,355,000
Italy	75,535,000	10,010,000	77,635,000	8,265,000
Russia	478,250,000	27,155,000	398,260,000	40,275,000

The returns of the Associated Banks of New York are of date July 14th and the others are of date July 13th, as reported by the Commercial and Financial Chronicle cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Indian exchange has been steady at 15.97d. per rupee, with an active demand for Council bills in London. Purchasers of silver for Indian account continue large, though it is difficult to determine what proportion of them are on Government account.

Shipments of silver from London to the East for the year up to July 5th, 1900, are reported by Messrs. Pixley & Abell's circular as follows:

	1899.	1900.	Changes.
India	£2,520,400	£3,047,127	I. £526,727
China	740,353	1,281,781	I. 541,428
The Straits	41,046	236,903	I. 195,857
Totals	£3,301,799	£4,565,811	I. £1,264,012

Receipts for the week this year were £255,000 from New York, £9,000 from Australia, £14,000 from Chile and £18,000 from the West Indies, a total of £296,000. Exports were £147,000 to India and £25,245 to China, a total of £172,245. Both imports and exports were all bar silver.

Receipts of specie from Mexico at San Francisco, chiefly by rail, are reported as follows for the six months ending June 30th:

	1899.	1900.
Silver dollars	$208,913	$2,445,081
Silver bullion	450,290	873,751
Gold bullion	439,465	1,162,228
Total	$1,098,668	$4,481,060

The increase in Mexican dollars is notable; most of them were reshipped to China. There was a large decrease in the gold bullion received.

Though exports of merchandise continue large, there was a decrease in June and the total for the month—$108,283,897—was the smallest reported since August, 1899. For the full fiscal year ending June 30th the statement is as follows:

	1899.	1900.
Exports	$1,227,123,302	$1,394,479,214
Imports	697,148,489	849,714,329
Excess of exports	529,874,813	544,764,885
Add excess of exports, silver		21,475,578
Add excess of exports gold		5,436,772
Total apparent balance		$571,677,235

The gold and silver movement in detail will be found in the usual place, at the head of this column.

Imports of specie by water at San Francisco for the six months ending June 30th are reported as follows:

	Gold.	Silver.	Totals.
Coin	$5,334,017	$145,560	$5,479,577
Bullion	139,069	1,083,731	1,222,800
Totals	$5,473,086	$1,229,291	$6,702,377
Totals, 1899			10,844,797

The decrease this year was chiefly in gold from Australia. There is now a shipment on the way to San Francisco from that country, with more to follow. The receipts were from the following countries: Mexico, $1,319,388; British Columbia, $46,811; Central America, $24,416; Australia, $978,930; China, $4,348; Japan, $3,990,591; South America, $1,280; Hawaiian Islands, $336,613. The receipts from Japan were in gold yen.

Other Metals.

Daily Prices of Metals in New York.

		Silver.		Copper.				Lead,	Spelter.	
July.	Sterling Exchange	Fine oz. Cts.	London, Pence.	Lake, cts. ₱ lb.	Electrolytic ₱ lb.	London, £ ₱ ton.	Tin, cts. ₱ lb.	cts. ₱ lb.	N. Y. cts. ₱ lb.	St. L. cts. ₱ lb.
14	4.86¾	61⅜	28⅛	16 @16¼	15¾ @16	....	33¾	3.95 @4	4.25 @4.30	4.10 @4.15
16	4.86¾	61⅛	28⅛	16⅛	15¾ @16	72½	34	3.95 @4	4.25 @4.30	4.10 @4.15
17	4.87	61⅛	28⅛	16⅛	16	72⅝	34	3.95 @4	4.25 @4.30	4.10 @4.15
18	4.87	61¼	28¼	16⅛	16	73½	34¼	3.95 @4	4.30 @4.35	4.12½ @4.15
19	4.87	61⅛	28⅛	16⅛ @16¼	@16⅛	73¼	34½	3.95 @4	4.30 @4.35	4.12½ @4.17½
20	4.87¼	61¼	28⅛	16⅛ @16¼	16 @16⅛	73¼	34½	3.95 @4	4.30 @4.35	4.12½ @4.17½

London quotations are per long ton (2,240 lbs.) standard copper, which is now the equivalent of the former g. m. b's. The New York quotations for electrolytic copper are for cakes, ingots or wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—The market has been firm and a fair business is reported from day to day at improved prices. The week has also brought a fair business for export. We quote Lake Copper at 16⅛@16¼c.; electrolytic copper in cakes, wirebars and ingots at 16@16⅛c., in cathodes at 15¾@15⅞c.; casting copper at 15⅞c.

The London market for speculative sorts, which closed last week at £71 17s. 6d. for spot, £72 for three months, opened at £72 5s. for spot, £72 7s. 6d. for three months; on Tuesday it advanced to £72 17s. 6d. for both deliveries; on Wednesday it was £73 10s. and on Thursday £73 5s. for both deliveries. It closes at £73 5s. for spot, £73 7s. 6d. for three months.

Statistics for the first half of the current month show a decrease of 1,300 tons. Refined and manufactured sorts we quote: English tough, £77@£78; best selected, £77 10s.@£78 10s.; strong sheets, £84 10s.@£85 10s.; India sheets, £82 10s.@£83 10s.; yellow metal, 7d.

Copper production, as reported by Mr. John Stanton, who acts as statistician for the producing companies, was as follows for June and the six months ending June 30th, stated in long tons (2,240 lbs.) of fine copper:

	June.		Six months.	
	1899.	1900.	1899.	1900.
U. S. Reporting Mines	19,710	19,235	111,987	114,177
U. S. Outside Sources	2,300	3,400	12,560	20,400
Totals, U. S.	22,010	22,635	124,547	134,577
Foreign Report'g Mines.	6,479	6,855	43,629	44,053
Totals	28,489	29,490	168,176	178,630
Exports, U. S.	10,002	16,586	68,284	90,229

The United States production for the six months shows an increase of 10,030 tons, or 8.1%; of this, 2,190 tons only came from the reporting mines and 7,840 tons from the outside sources. The increase in the foreign reporting mines was only 424 tons. The increase in United States exports was 21,945 tons, or 32.3%. Our exports this year were 67% of the production.

Tin.—Tin for prompt shipment remains very scarce and as high as 34½c. has been paid. Consumers appear to be poorly supplied, and with the scant arrivals in sight it would appear that present conditions may prevail for some little time to come. August delivery is selling at a discount of over 1½c. per lb. At the close we quote spot tin at 34½c., later deliveries at 33c.

The London market, which closed last week at £143 for spot, £137 10s. for three months, opened £1 higher, but this advance was lost on Tuesday. On Thursday the market was £142 for spot, £136 for three months, and it closes at £143 10s. for spot, and £137 10s. for three months.

Lead.—The market shows no quotable change, but remains quiet and dull. We quote New York 3.95@4c., St. Louis 3.90@3.95c.

The European market continues firm, Spanish lead being quoted at £17 10s., English lead at £17 12s. 6d.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is firm, but very quiet, and 3.95c. continues to be the price for Argentiferous as well as Missouri metal. The trade generally is more or less apprehensive of another break and on this account buys from hand to mouth only.

Spanish Lead Market.—Messrs. Barrington & Holt write from Cartagena, Spain, under date of July 2d: The average price of silver during the past month has been 13.90 reales per ounce. The average price of lead has been 89.30 reales per quintal, equivalent to a price of £16 2s. 6d. per ton of 2,240 lbs. f. o. b. Cartagena on an average exchange of 31.73 pesetas to £1. The export of lead during the past month has been: 1,955,661 kgs. to Marseilles; 693,447 kgs. to Newcastle; 676,598 kgs. to London; 5,000 kgs. to Bristol; a total of 3,330,706 kgs.

Spelter.—The market has this week displayed more strength. The reduction in the output of ore is making itself felt and has caused smelters to raise their prices. We quote St. Louis 4.12½@4.17½c., New York 4.30@4.35c.

The London market is cabled as £19 2s. 6d. for good ordinaries, £19 7s. 6d. for specials.

Messrs. Barrington & Holt report the exports of zinc ore from Cartagena, Spain, for June as follows: 200,000 kgs. zinc ore to Swansea; 5,500 kgs. blende to Liverpool; 1,000 kgs. blende to Marseilles.

Antimony.—We quote Cookson's 10½c.; Hallett's 9½c.; U. S. Star, 9½c.

Nickel.—The price continues firm at 50@60c. per lb., according to size and terms of order.

Platinum.—Consumption is increasing and prices are strong and likely to go higher. For ingot platinum in large quantities $18.20 per Troy oz. is quoted in New York.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 72c. per gram, showing an increase of 1½c.

Quicksilver.—The New York quotation is unchanged at $51 per flask for large lots; for small orders $52.50@$54 is asked. San Francisco quotations are $51.50@$52 for local deliveries, and $46.50@$47 for export.

The London price continues £9 10s. per flask, with the same figure quoted from second hands.

Minor Metals and Alloys.—Wholesale prices, f. o. b. works, are as follows:

	Per lb.		Per lb.
Aluminum.			
No. 1, 99% ingots	33@37c.	Ferro Titanium (20%)	$1.00
No. 2, 90% ingots	31@34c.	Ferro-Tungsten (37%)	35c
Rolled sheets	42c. up	Magnesium	$2.75@3.00
Alum.-bronze	20@23c.	Manganese (over 99%)	$1.05
Nickel-alum	33@39c.	Mangan'e Cop. (20% Mn)	32c.
Bismuth	$1.60	Mangan'e Cop. (30% Mn)	38c.
Chromium (over 99%)	1.00	Molybdenum (Best)	$1.45
Copper, red oxide	60c.	Phosphorus	45@47½c.
Ferro-Molyb'um (50%)	$1.05	Tungsten (Best)	95c.
Ferro-Titanium (10%)	90c.		

Variations in prices depend chiefly on the size of the order.

LATE NEWS.

A dispatch from Philadelphia, July 19th, says: "The first cargo of Pennsylvania soft coal ever sent from this country to London will shortly leave this city on the British steamship 'Queenswood,' which was yesterday chartered for that purpose. Unusual importance attaches to this shipment, because the coal is to be used as fuel by English railroads, principally the London & Northwestern, whose expenses have been considerably increased of late by the high prices they have had to pay for English coal. The 'Queenswood's' cargo will consist of 4,000 tons, for which she will receive 16s., about $4 per ton, freight. Even at these prices, which will make the coal cost in England something like $7 a ton, the Pennsylvania product is said to be somewhat cheaper than the native coal."

San Juan County, Colorado.

(From Our Special Correspondent.)

Occidental Mining Company.—The new tunnel at this Silverton property is in 1,000 ft., having exposed an ore body 500 ft. long and 5½ ft. wide. The middle and upper tunnels will cut the Thomas Jefferson, Invincible and U. S. veins at a depth of 1,000 ft. The Occidental group has been developed steadily for 5 years and comprises 11 full claims, 1 placer claim and 2 mill sites. Mr. Hurley, of New York City, is president of the company. A 100-ton concentrator will be erected.

Queen Anne.—The wagon road to this property in Ross Basin, near Silverton, is completed and shipments will begin at once to the Red & Bonito mill.

Red Mountain Tunnel.—Additional men have been put on and work is being pushed by 2 shifts.

Silver Queen Mining and Milling Company.—The mill, lately remodeled, was started July 5th and 40 men will be put on at once. This mine has shipped since its discovery $35,000 worth of crude ore, averaging $71.50 per ton. A crosscut was lately run through the hanging wall and disclosed a 3-ft. vein averaging $80 per ton. The mine has been a producer from grass roots and has 1,300 ft. of development.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 90.)

New York. July 20.

Heavy Chemicals.—The market is dull, with very little demand for immediate deliveries. Prices are steady. For future delivery orders for bicarb. soda are being booked on basis of quotations below. Caustic soda for later shipment is still bought at $1.85 per 100 lbs. f. o. b. works. Bleaching powder is easy in price. Chlorate of potash is stronger.

We quote per 100 lbs. as below:

Articles.	Domestic. F.o.b. Works.	Domestic. In New York.	Foreign. In New York.
Alkali, 58%.	80@85	95@$1.00	85@90
" 48%.	85@90	$1.00@$1.05	1.02½@1.05
Caustic Soda, high test....	$1.90@$2 00	2.25@2.30	$2.50@2.55
powd, 60%.	.....	3.00@3.25	.....
70@74%.	.....	3.25@3.50	.....
98%.	.....	3 50@4.00	3.75@4.00
Sal Soda.....	70@80.	.....	67½@70
"conc.	1.45@1.75	.....	1.75
Bicarb Soda..	1.25@1.37½	.....	2.25
" " extra	3.25@3.50	.....	.....
Bleach Pdr., Eng. prime..	.....	.....	1.70@1.75
other br'nds.	.....	.....	1.45@1.60
Chl. Pot cryst	.....	9.12½@9.25	10.00@10.25
" powd.	.....	9.25@9.50	10.25@10.50

Acids.—Business has been generally in small lots, except in acetic acid, where some sales of 28% are reported at $1.75 per 100 lbs. for forward delivery. Sulphuric contract deliveries are small. Blue vitriol is easy. Oxalic is in request for shipment at $5.62½@$5.75 per 100 lbs., while spot holds at quotations below. Carbolic is strong and importers ask 23@24c. per lb. in drums.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, No 8 in lbs	$1.62½	Nitric, 36°	$3.87½
Blue Vitriol	4.62½@4.75	Nitric, 38°	4.12½
Aqua Fortis, 36°	3 62½	Nitric, 40°	4.37
Aqua Fortis, 38°	3 87½	Nitric, 42°	4.75d.
Aqua Fortis, 40°	4.12½	Oxalic	5.75@5.87½
Aqua Fortis, 42°	4.50	Sulphuric, 66°	1.20
Muriatic, 18°	1.20	Sulphuric, 60°	1.05
Muriatic, 20°	1.35	" bulk 50° ton	14.00
Muriatic 22°	1.50		

Brimstone.—Quotations remain unchanged on a light business. Spot best unmixed seconds are quoted at $21@$21.50 per ton; shipments in July, $21, and August to September, $20.50@$20.65.

Mr. Archer Harman, the builder of the Guayaquil & Quito Railroad, has informed the governor of the Pichinca district, Ecuador, that valuable sulphur mines have been discovered in the crater of the extinct volcano of Guaqua-Pichinca. The deposits are found adhering to the sides of the crater in veins, and in some instances in solid blocks. According to the terms of the concession received from the Government, the Guayaquil & Quito Railroad Company has denounced this mine, and therefore has the exclusive right of mining.

Pyrites.—There is nothing new to report in the way of business. It now seems probable that the long talked of railroad from Gainesville, Ga., to Dahlonega will be built. This may bring into the market some deposits of pyrites in that section.

We quote: Mineral City, Va., lump ore, $4.75 per long ton (basis 42%), and fines, $4.20. Charlemont, Mass., lump, $5.50, and fines, $5. Spanish pyrites, 13@15c. per unit, according to percentage of sulphur contents, delivery ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46%@51% of sulphur; American, 42%@44%.

Fertilizing Chemicals.—Demand for the leading ammoniates is fair.

Sulphate of ammonia, gas liquor, for shipment, holds at $2.72½@$2.75 per 100 lbs., and on spot at $2.80@$2.82½. Large sales of blood are noted at $1.80@$1.85 per unit f. o. b. Chicago. Tankage is worth $1.75 and 10 per unit f. o. b. Chicago. Other quotations are: Fish scrap, wet, $11@$11½ per ton, and dry, $20@$23 f. o. b. factory; domestic steamed ground bone, $20@$22 per ton, as to quality; azotine, $1.90@$2 per unit; bone black, spent, $15@$16 per ton.

Nitrate of Soda.—The market is quiet, but generally firm.

The monthly statistical position of nitrate of soda in Europe this year, in long tons of 2,240 lbs., is as below:

	Exports to Europe.	Imports.	Deliveries.	Vis. supply on 1st.
January	75,792	142,570	92.120	713,710
February	92,302	106,300	174,530	726,680
March	73 932	86 270	203,920	648,050
April	47,035	151,830	171,450	513,900
May	47'803	135,130	125,820	386,350
June	86,541	83 140	92.130	302,710
July	.....	.....	.....	296,200
Total tons..	423,495	705,240	859,870	.....

As compared with the corresponding six months last year the imports in 1900 show a decrease of 60,190 long tons; the deliveries, an increase of 5,040 tons, while the visible supply on July 1st is 38,940 tons less.

Messrs. W. Montgomery & Company, of London, report for the half year ending June 30th that the serious fluctuations in nitrate of soda were chiefly caused by the irregularity and unseasonableness of the weather—a comparatively mild winter being followed by a cold, dry and late spring, which were not conducive to an increased application of nitrate of soda for the nitrogen-feeding crops. Production in Chile shows the small increase of 30,000 tons since January 1st. The actual consumption in Europe for the six months amounts to 848,000 tons, almost the same as 1899, and this without taking into account that the interior stock on the Continent in the hands of dealers at the beginning of the season was at least 20,000 tons more than the 12 months previously. The consumption in the United States in the half year amounted to 75,000 tons, against 65,000 tons in 1899. For the year ending June 30th, 1901, we reckon upon a total requirement in the world of not less than 1,400,000 tons, and this figure might, if prices continued moderate, be considerably increased. On June 30th the visible quantity available for consumption in Europe and America from now until October amounts to 350,000 tons, thus leaving 1,050,000 tons to be brought to consuming markets between October and June next. The consumption of the world in 1900 is estimated at 1,350,000 tons, against 1,260,000 tons in 1899, and 1,178,000 tons in 1898. Shipments in 1900 are 1,353,000 tons; in 1899, 1,373,000 tons, and in 1898, 1,141,000 tons.

Concerning the Chilean nitrate of soda market we are advised by Messrs. Jackson Brothers, of Valparaiso, under date of June 2d that scarcely any order to purchase has come forward from consumers during the fortnight. The high rate of freight, 36s. 3d., asked for spot vessels would only admit of about 4s. 9d. being paid for 95% nitrate for June-July sailing—a price entirely out of the sphere of producers' ideas, and for season shipment 5s. combined with 32s. 6d. is about all that is offered. Exports in May were about 1,107,000 qtls., making a total for the 5 months of 9,240,000 qtls. (418,275 long tons), as against 10,560,000 qtls. (478,209 tons), in 1899. Sales in the fortnight ending June 2d were only 64,700 qtls. We quote 95%, July, 5s. ½d.; August, 5s. 1½d.; September-November, 5s. 2½d.; and 96%, June-July, 5s. 1d., all ordinary terms sellers. The price of 4s. 10½d. with all-round freight of 36s. 3d. stands in 6s. 11¾d. per cwt. net cost and freight without purchasing commission.

Phosphates.—There is nothing new in the market, and not much new business is in sight. Tennessee people are complaining of dull trade, high freights and bad weather.

Quotations on phosphate rock are as follows:

Phosphates.	Per Ton F. o. b.	C. f. Un'd Kingdom or No Sea Ports. Unit.	Long ton.
*Fla. hard rock (77@80%)	$7.50@8.00	7¾@8d	$12.09@12.48
*Fla. land pebble (68@73%)	4.35	6¾d	9.45
*Fla Peace River (58@63%)	3.00@3 50	6½d	7.80
†Tenn. rock 78%, export.	4.00@4.50	7d@7¼d	10.92@11.31
†Tenn.....78% domestic.	3.30@3 50	.....	.....
†Tenn.....75% "	3.00@3.25	.....	.....
†Tenn.....72% "	2.65@2.75	.....	.....
‡So. Car. rock, crude....	4.00	.....	.....
§So. Car. rock, dried.....	4.50	.....	.....
Algerian, rock...(63@70%	.....	6¾d	9.05
Algerian, rock...(58@63%)	.....	6½d	7.80
Christmas Isle...(80@85%)	.....	8½d	14.03

* Fernandina. † Mt. Pleasant. ‡ At mines. § On vessels, Ashley River.

Liverpool. July 3.

(Special Report of Joseph P. Brunner & Co.)

There is nothing much stirring in chemicals, the demand being only on a moderate scale, while at the same time quotations in most cases are fairly well maintained.

Soda ash is well controlled by makers and a steady business passing at usual varying prices acording to market. We quote range for tierces about as follows: Leblanc ash, 48%, £4 15s.@£5 10s. per ton; 58%, £4 5s.@£5 10s. per ton, net; ammonia ash, 48%, £4 5s.@£4 10s. per ton; 58%, £4 10s.@£4 15s. per ton. Cash bags, 5s. per ton under price for tierces.

Soda crystals meet with a fair amount of attention from buyers, and for barrels £3 2s. 6d. per ton less 5% is generally quoted, or 7s. less for bags, with special terms for a few favored markets.

Caustic soda is not active, but at the same time a steady trade is going on at full prices. We quote spot range is follows: 60%, £9 5s.; 70%, £10 5s.; 74%, £10 15s.@£10 17s. 6d.; 76%, £11 5s.@£11 10s. per ton net cash.

Bleaching powder in light request at nominally about £6 10s.@£6 15s. per ton net cash for hardwood packages.

Chlorate of potash very quiet at nominally 4d. @4¼d. per lb. net cash, but in the absence of business it is difficult to test values.

Bicarb. soda moves off at £6 15s. per ton less 2½% for the finest quality in one cwt. kegs, with usual allowances for larger packages, also special quotations for certain markets.

Sulphate of ammonia dull and easier at £11@£11 2s. 6d. per ton less 2½% for good gray 24, 25% in double bags f. o. b. here.

Nitrate of soda quiet at about £8@£8 5s. per ton less 2½% for double bags f. o. b. here, as to quality.

MINING STOCKS.

Complete quotations will be found on pages 87 and 88 of mining stocks listed and dealt in at:

Boston	Philadelphia.	Montreal.
Colo. Springs.	Salt Lake.	London.
Denver.	San Francisco.	Mexico.
New York.	Spokane.	Paris.
	Toronto.	

New York. July 20.

The market has been extremely dull. The hot weather has kept brokers away and has prevented most people from taking an interest in anything except the hunt for a cool spot.

Very little was done in the copper stocks. Anaconda was $42 bid, with no sales, while Amalgamated was quoted at $85½. British Columbia Copper was $10¼ bid and $10¾ asked; but no genuine bids were apparent. Union Copper found no purchasers at $1¾. There were some sales of Tennessee Copper at $14.

Flemington Coal and Coke was quoted at $25. The steel stocks were not in favor.

On the Consolidated Exchange there was very little done. Standard Consolidated sold at $4@$4.25, and Brunswick—which has just levied an assessment—brought 12c. Quicksilver common was called at $1.50 and the preferred at $6.50. The Comstocks were hardly noticed. Ontario of Utah was $6 bid, with no sales.

The Cripple Creek stocks are strong. Portland was quoted at $2.90, and Isabella at $1.23@$1.27.

The fact that these stocks—and some other good ones—are largely held in and near New York makes it probable that if we could have a new list, clearing out the old Comstock and other deadwood and substituting stocks of some value, we might have a revival of the mining market. But not just now—it is too hot for serious work.

At a recent meeting of the stockholders of the Burden Iron Company the following directors were elected: James A. Burden, I. Townsend Burden, John L. Arts, James A. Burden, Jr., and William P. Burden. The directors elected the following officers: President, James A. Burden; vice-president, James A. Burden, Jr.; general manager, John L. Arts; secretary, Nicholas J. Gable.

Boston. July 18.

(From Our Special Correspondent.)

The little spurt of last week has quite died out. It was inside trading altogether, and the brokers apparently could not stand 100° in the shade on State street, and so left for the beaches or the mountains. If the brokers could not stand it the public would not, and the exchange was almost deserted yesterday and to-day. Naturally the market was a narrow one, very little being done, and the fluctuations in price meant little or nothing.

Calumet & Hecla was quoted at $730, with no sales. Boston & Montana was $306; Quincy, $142; Osceola, $64½@$65. There were sales of Amalgamated at $85½; Parrot at $40; Arcadian at $21½; Isle Royale at $26½.

There was no more excitement over gold stocks than coppers. Centennial-Eureka was called at $23 and Cochiti at $8.

Our long-lived legislature, which some people say is going to sit till Christmas, has finally dropped the gas business. There was no occasion to take it up at all, and the whole business was the work of certain speculators who had a grudge to pay off. They have failed to do any harm.

This week has settled the question of reviving the boom, and there will be no big movement in stocks before September at the earliest—more probably later.

Colorado Springs. July 14.

(From Our Special Correspondent.)

The markets for the week past have shown better trading than has been the rule for months past. A change for the better has occurred and the reaction toward better prices has signs of permanency. All indications point at this time to the fact that the summer slump is past and the beginning of the fall boom in mining stocks has set in.

There was this week a marked tendency toward professional trading. Many pet stocks were assisted on their upward course by interested brokers and the eastern buyer should not allow himself to be misled by seeing this or that

cheap-priced prospect make a gain from 2c. to 10c. a share. There were a number of such instances this week, among which are to be mentioned Robert Burns, Kitty Gold, Gold Hill and almost every stock which has property located within half a mile or so of the remarkable strike made upon the Unexpected claim of the Central Consolidated Company on Raven Hill. The advances in the prospect stocks referred to above were, therefore, upon borrowed honors.

The danger at this time of rising markets is for the interested brokers to treat their favorites in stocks with a great deal more attention than the merits of these stocks actually warrant. The public need not be hurt if it buys advisedly, for there are enough firms who are doing a legitimate brokerage business.

Among the features of the week Central Consolidated was the leader. The strike already referred to was the cause of the advance of these shares to 15c. They closed weaker to-day.

Elkton made a net gain of 14c. upon the excellent showing of the mine and the report of the finding of an entirely new vein in an unprospected section of the company's holdings. The annual meeting of the stockholders was held on the 9th. The report of President George Bernard showed that during the year ending with May 31st 14,442 tons of ore were shipped, yielding a gross value of $646,870. The total cash assets of this company to-day are $164,679. This sum is independent of the cash balances in the treasuries of the Raven and Tornado companies which become added assets of the Elkton by reason of the purchase of these companies a month ago for over $1,100,000.

Stratton's Independence shares have been placed on the local market through an arrangement of a local firm with the London office of this corporation. The shares are selling this week in London at £2 9s. 16d. bid, with £2 11s. 16d. asked. Coriolanus, Rose Maud, Little Puck, Pointer, National Acacia, Volcano, Grace, Mollie Dwyer, Flower of the West, Ingham, Champion and Texas Girl were the leading active stocks of the week.

The sales on the Colorado Springs Mining Stock Exchange for the past 7 days were 5,842,997 shares, of a cash value of $732,359. This is a gain of more than 50% during the week. The bank clearings of the city have made a gain of almost $750,000 over a week ago. This indicates the improvement in the mining stock markets.

Salt Lake City. July 14.

(From Our Special Correspondent.)

The Utah mining share market is in a stagnant groove, fully as sultry as the weather. Lead has dropped back and there are all sorts of reports unfavorable to a firm market, which has had the natural effect of weakening the lead-silvers and there is no encouraging influence above the horizon.

Bullion-Beck is softer, though the new ore body at the south end continues to show favorably. Centennial-Eureka will pay the $100,000 quarterly dividend July 20th, and splendid shipments are maintained. The shares here are a reflex of the Boston market, though Utah holders are not inclined to let go. Chloride Point holds fairly firm. Daly-West weakened slightly on announcement of the lower lead settling price. The usual $37,500 dividend will be paid July 20th. Dexter is seemingly in better form. Four Aces has levied another assessment of 3c. and the shares are groggy. Grand Central directors did not declare a dividend at their meeting this week. Both Joe Bowers and Bowers Extension are sluggish. A dividend is promised from Mammoth early in August, but the shares fail to rally.

Mercur is quiet, pending the final act in the consolidation with the De La Mar properties. There will be a dividend to Mercur holders prior to that event and there is speculation as to the amount. Ontario supplied a disappointment in passing the quarterly dividend. Superintendent Chambers is quoted as saying that this is due to the judgment for the Crown Point in the trespass suit. It was entirely unexpected, as the mine is realizing a good profit, such at least is the current report. Silver King paid the $75,000 dividend July 10th. Star Consolidated went down with all the speculatives. Swansea paid the usual $5,000 dividend on Tuesday. Valeo again droops. One who should know affirms that the hints of an assessment soon are unwarranted, as there is no debt and ample paying ore in sight to keep up development.

On July 12th, at Salt Lake City, President-Manager Charles Lammersdorf signed an option on a basis of $175,000 for the Sevier Mine, conditioned on $20,000 being expended in exploration in the next 6 months. W. F. Snyder holds the option, which is along the same lines as that on which the Annie Laurie sale was made.

San Francisco. July 14.

(From Our Special Correspondent.)

Another week of light business and no news except of more assessments. The bulletins from the Comstock pumping and electric plants were absolutely blank. Consolidated California and Virginia was quoted at $1.50; Ophir, 71c.; Sierra Nevada, 27c.; Best & Belcher, 24c.; Chollar, 20c.; Potosi, 18c.

Acording to their monthly sworn statements the following companies report having had cash on hand July 1st, 1900, with all expenses paid to date, unless otherwise stated: Alta, $21, with an indebtedness of $726 and an assessment being collected; Alpha Consolidated, $2,814; Andes, $298, with an assessment being collected; Belcher, $8,237, with June expenses at the mine unpaid; Best & Belcher, $1,852; Bullion, $2,224; Caledonia, $8,742, with June expenses unpaid; Confidence, $2,194, with June expenses unpaid; Consolidated California & Virginia, $1,957, with all June expenses paid and 42,546 lbs. of concentrates valued by assay at $828.81 per 2,000 lbs., and 2,396 lbs., of concentrates valued at $891.64 per 2,000 lbs., on hand, unsold; Chollar, $3,364; Consolidated New York, $610; Crown Point, $52, with an assessment being collected; Challenge Consolidated, $707; Consolidated Imperial, $744, with an assessment being collected; Exchequer, $1,007; Gould & Curry, $2,390, with $13,979 to be collected on the pending assessment, and notes payable of $5,000; Hale & Norcross, $142; Julia Consolidated, $37; Justice, $1,199; Mexican, $1,454; Ophir, $9,056; Overman, $2,449, with June expenses unpaid; Potosi, $1,513; Savage, $4,258; Sierra Nevada, $57; Silver Hill, $2,736; Segregated Belcher, $5; Standard Consolidated, $164,621, with June clean-up and expenses to be received; Syndicate, $1,873; Utah Consolidated, $2,319.

The San Francisco Stock and Exchange Board adjourned earlier in the forenoon than usual Thursday morning as a mark of respect to the memory of the late William E. Hale. Mr. Hale had long been a member of that board and though he had been in another line of business since many remember what an active and excellent broker he used to be in former years. He was one of the few who still believed in a future active market for the Comstock.

The Oil Exchange showed rather light business, but good prices. Oil City was quoted $17.75; Kern, $16.50.

London. July 3.

(From Our Special Correspondent.)

The "Associated" of West Australia is the mien in Kalgoorlie that has occupied the chief attention of the West Australian section this week. As will be remembered, this mine suddenly collapsed as a producer, and subsequent examination by independent experts showed that the management had been very improvident. The shareholders considered it best to reorganize the board and take the direction out of the old hands. It is now proposed to get Mr. Frank Gardner as chairman and retain Mr. Landau as a director. The latter gentleman is a member of the Stock Exchange and undertook the reorganization of the management when the collapse took place. He visited the mine and accompanied the independent experts, so that it may be taken for granted that he knows something of the business. Mr. Frank Gardner is one of the most successful Americans at present in London, and is chairman or director of a considerable number of mining companies operating American and West Australian properties. His promoting company is the British Westralia Syndicate, which has done pretty well for its shareholders, and his Great Boulder Perseverance has the makings of a good mine. His American ventures are mostly in copper and include the Copper King in California, the Avino in Mexico, and the Boston Consolidated in Utah. His companies do not all pay dividends by any means, but he is a capital hand at selling shares at a big premium chiefly on prospects, and anyone who follows him implicitly may make money in this way.

The West Australian sulphide question was for the first time treated by a London expert and explained publicly in an unbiassed and authoritative manner last week, when Mr. Alfred James read a paper before the Institution of Mining and Metallurgy. This paper was circulated widely in the market and has attracted considerable attention. It is to be hoped that it will counteract to some extent the loud advertisements of all kinds of patents, and disperse some of the ignorance which exists in the minds of the majority of shareholders. Mr. James pointed out that expensive patent processes were not required, nor should immense plants be put up before their efficiency on this class of ore was demonstrated. In fact, he went through the A B C of the rules of mining and metallurgical management, which the "Engineering and Mining Journal" has been trying to instill into the minds of London directors for years, but of which they seem to be as profoundly ignorant as ever.

Paris. June 8.

(From Our Special Correspondent.)

The Chinese trouble overshadows everything else just now. People do not know what to think about it. Very few have ever taken the trouble to study that remote country, and those who know anything about it at all have read only of the little local wars which Europe has had, and which now seem to have grazed the outer skin only. It begins to look now as if the whole people was aroused, and we do not know how to consider the position. An army one can estimate, consider, plan against, work to meet its portable strength, but 400,000,000 people, say 40,000,000 fighting men, What can one do?

It is not army against army, gun against gun—it is a man fighting the quicksand, and we all know the end of that contest.

The situation is not a good one, and it is quite clear that if we wish to control it, all Europe must work together and be ready to spend men and money without question and almost without limit.

One cannot hold back the ocean with a lath.

Although this matter perplexes people here, the mining stock market is in some respects improved. The metallurgical shares are no longer falling, and seem more in demand. It is time that orders for ships and guns are in prospect, but the coal problem is still to be solved. Costs are very high and most of our works are in no position to meet a falling market.

Copper shares are also stronger, not only is there some advance in the metal, but it is quite clear that most producers would be able to make money, even with much lower prices.

The Transvaal gold stocks are very quiet, but prices are generally high, and there is no selling.

The gold and silver movement in France for the five months ending May 31st is reported by the Ministry of Commerce as below:

	Imports, Francs.	Exports, Francs.	Excess, Francs.
Gold:			
1900	135,381,060	30,251,371	Imp. 105,129,719
1899	129,027,366	64,367,801	Imp. 64,659,565
Silver:			
1900	57,475 946	85,120,961	Exp. 27,645.015
1899	80,558,378	82,694,296	Exp. 2,135,918

Imports of copper and nickel coins, taken at their face or coinage value, were 25,200 fr., against 29,700 fr. in 1899. Exports were 108,000 fr., against 304,200 fr. last year.

I must congratulate you on the appearance of Volume VIII. of "The Mineral Industry." It is a noble monument of industry and research.

Azote.

DIVIDENDS.

NAME OF COMPANY.	Latest Dividend. Date	Per share.	Total.	Total to date.
		$	$	$
†Amalgamated	July 30	2.00	1,500,000	6,000,000
Am. Car & Fdry, com.	Aug. 1	.50	..	.....
Am. Car & Fdry, pf	Aug. 1	1.75	.....	.....
†Am. Steel Hoop, pf.	July 31	1.75	.....	.....
†Am. Tin Plate, pf	July 31	1.75	.....	.....
†Bost. & Mont	Aug. 20	10.00	1,500,000	18,760,000
Buffalo Hump	Aug. 1	.10	30,000	185,000
†Cent'l Eureka, Utah	July 20	1.00	100,000	2,367,700
*Homestake	July 25	.50	105,000	8,878,750
La Fortuna, Ariz	July 6	.10	.....	.....
†National Salt, com	Aug. 1	1.50	.....	.....
†Nat'l Tube, com	Aug. 15	1.50	.....	.....
N. Y. & Hond. Rosario	July 14	.10	15.000	1,267,000
†Parrot, Mont	July 30	1.50	344,775	4,049,050
Pittsburg Coal, pf	July 25	1.75	.....	.....
†Tenn. C., I., common	Aug. 1	2.00	.....	.....
†Tenn. C., I. & RR., pf.	Aug. 1	2.00	.....	.....
Texas & Pacific Coal	July 26	1.50	.....	.....
Vindicator Con., Colo.	July 25	.05	54,500	465,500

* Monthly. † Quarterly. § Semi-annual.

ANNUAL MEETINGS.

Name of Co.	Locat'n.	Date.	Place of Meeting.
Calumet & Hecla	Mich	Aug. 15.	Boston.

ASSESSMENTS.

NAME OF COMPANY.	Location.	No	Delinq.	Sale.	Amt.
Alaska	Utah	...	Aug. 4	Aug. 25	.02
Alta	Nev.	65	July 10	July 31	.05
Andes	Nev.	51	Aug. 6	Aug. 27	.05
Brunswick Con.	Cal.	...	Aug. 20	.....	.07
Cadmus	Cal.	...	July 25	.....	.10
Calfornia Borax	Cal.	3	July 5	July 30	2 00
Copper Range	Mich	..	Aug. 6	....	3.00
Crown Point	Nev.	70	July 18	Aug 8	.05
Dutch	Cal.	..	July 30	....	.15
Father de Smet	S.D'k	3	July 9	Aug. 6	.25
Garibaldi	Cal.	2	July 9	July 31	.04
Geyser-Marion	Utah	...	June 27	July 30	.03
Goleta Con	Cal.	1	July 16	Aug. 15	.06
Gould & Curry	Nev.	90	July 10	July 31	.15
Great Bonanza	Utah	...	Aug. 3	....	.00½
Joe Bowers, Ext	Utah	8	July 20	Aug. 7	.01
Mammoth Garfield	Cal.	...	Aug. 4	Oct. 2	.17½
May Day	Cal.	4	June 6	July 25	.10
Mazeppa	Cal.	...	Aug. 7	.....	.03
Meteor	Utah	...	July 10	Aug. 14	.00½
National Con	Cal.	12	July 9	Aug. 1	.05
Old Susan	Utah	1	Aug. 2	Aug. 21	.00¾
Pacific	Utah	3	July 10	July 31	.00½
Reward	Cal.	...	July 23	.....	.02
Rich Bar Gravel	Cal.	1	July 30	Aug. 22	.06
Ruby Hill	Utah	1	July 10	Aug. 10	.00¼
Sierra Nevada	Nev.	...	Aug. 14	.....	.15
Spanish Con	Cal.	...	July 16	.....	.05
Tesora	Utah	...	July 12	July 28	.02½
Yellow Jacket	Nev.	4	July 26	Aug. 31	.10

STOCK QUOTATIONS.

NEW YORK.

Name of Company	Location.	Par val.	July 13. H.	July 13. L.	July 14. H.	July 14. L.	July 16. H.	July 16. L.	July 17. H.	July 17. L.	July 18. H.	July 18. L.	July 19 H.	July 19 L.	Sales
Alamo	Colo	1	.15¾	.....	.....	.....	.16	.....	.15	.....	.....	.....	.....	.....	2,000
Alice	Mont.	1	.42	.....	.....	.....	.....	.....	.39	.....	.....	.....	.....	.....	70
Amalgamated C	"	100	85.75	84.75	85 25	84 75	85 50	84.88	85 2	84.75	85.5	4.75	85.50	84 75	...
Anaconda, c	"	25	40 63	...	40.00	39 75	38 75	.....	40 00	..	40.38	40.00	40.63	.....	1,315
Anaconda Gold	Colo..	5	...	...	50	.....	.48	.....	.42	.....	.....	.....	.....	.....	30
Argentum-Jun..	"	2	...	...	28	.....	.26	.....	.25	.....	.....	.....	.....	.....	500
Ariz. Lead	Ariz.	25	15.00	.....	15.00	.....	15.00	.....	15 00	.....	15 00	.....	.....	.....	...
Belcher	Nev..	3	...	.....	.....	.....	.12	.....	.10	.....	.....	.....	.....	.....	...
Best & Belcher	"	3	...	.....	.....	.....	.2	.....	.26	.....	.....	.....	.....	.....	...
Brit.Col.Copper	B. C..	1	11.25	10.75	11.25	10 00	11 25	10.50	11 25	10.50	11.25	10.50	15.00	12 00	...
Brunswick	Cal..	1	...	.....	.....	.....	.12	.....	.10	.....	.....	.....	.....	.....	...
Catalpa	Colo..	10	...	.....	.....	.....	.16	.....	.10	.....	.....	.....	.....	.....	...
Choiar	Nev...	3	...	.....	.....	.....	.15	.....	.15	.....	.....	.....	.....	.....	...
Chrysolite	Colo..	50	.04	.....	.....	.....	.04	.....	.04	.....	.....	.....	.....	.....	500
Comstock T	Nev..	100	.18	.....	.....	.....	.08	.....	.08	.....	.....	.....	.....	.....	600
" bonds	"	100	...	.....	.....	.....	...	.....	...	.....	.....	.....	.....	.....	...
Con. Cal. & Va.	"	2½	1.55	.....	.....	.....	1 55	.....	1.45	.....	1 50	.....	.....	.....	800
Creede & C. C.	Colo..	1	...	.....	.....	.....	.13¾	.....	.....	.....	.....	.....	.....	.....	100
Crescent	"	10	...	.....	.12	.....	.12	.....	.09	.....	.....	.....	.....	.....	400
Cripple Cr. Con.	"	1	...	.....	.....	.....	...	.....	...	.....	.....	.....	.....	.....	...
Daly	Utah..	20	...	.....	.....	.....	1 00	.....	1 00	.....	1.25	.....	.....	.....	100
Deadw'd Terra.	S.Dak.	25	46	.....	.....	.....	.40	.....	.40	.....	.....	.....	.....	.....	50
Elkton	Colo..	1	...	.....	.....	.....	1.00	.....	...	.....	.....	.....	.....	.....	100
Golden Age	"	25	...	.....	.03¾	.....	...	.....	.05¾	.....	.02¾	.....	.....	.....	4,500
Golden Fleece	"	1	.36	.....	.....	.....	.36	.....	.35	.....	.....	.....	.....	.....	600
Gould & Curry	Nev ..	3	...	.....	.....	.....	.20	.....	.20	.....	.....	.....	.....	.....	...
Hale & Norcross	"	3	...	.....	.....	.....	.20	.....	.20	.....	.....	.....	.....	.....	...
Homestake	S. Dak	100	...	.....	.....	.....	50 00	.....	50 00	.....	.....	.....	.....	.....	...
Horn Silver	Utah..	20	...	.....	.....	.....	1 15	.....	1 17	.....	1.15	.....	.....	.....	...
Iron Silver	Colo.	20	...	.....	.....	.....	.52	.....	.58	.....	.....	.....	.52	.....	...
Isabella	"	1	1.28	.....	.....	.....	1.26	.....	1.27	.....	.....	.....	.....	.....	400
King & Pemb	Ont ..	10	...	.....	.....	.....	...	.....	...	.....	.....	.....	.....	.....	...
Lacrosse	Colo..	10	.15	.....	.....	.....	.13	.....	.15	.....	.....	.....	.....	.....	400
Leadville	"	10	...	.....	.....	.....	.05	.....	.05	.....	.....	.....	.....	.....	...
Little Chief	"	1	...	.....	.....	.....	.16	.....	.16	.....	.16	.....	.....	.....	200
Mexican	Nev..	8	...	.....	.....	.....	.15	.....	.15	.....	.15	.....	.14	.....	...
Mollie Gibson	Colo..	5	...	.....	.25	.....	.24	.....	...	.....	.25	.....	.....	.....	1,500
Ontario	Utah	100	...	.....	.....	.....	6.25	.....	6.00	.....	.....	.....	.....	.....	...
Ophir	Nev..	3	...	.....	.....	.....	.65	.....	.73	.....	.....	.....	.62	.....	500
Pharmacist	Colo	1	...	.....	.14	.....	.14¾	.....	.14	.....	.....	.....	.....	.....	6,000
Phoenix	Ariz..	1	.08	.....	.....	.....	.07	.....	.06	.....	.08	.....	.....	.....	600
Plymouth	Cal..	10	...	.....	.....	.....	.10	.....	.10	.....	.11	.....	.....	.....	100
Portland	Colo.	1	...	.....	.....	.....	2 9	.....	2.95	.....	.....	.....	.....	.....	...
Potosi	Nev..	3	...	.....	.....	.....	.10	.....	.12	.....	.....	.....	.....	.....	...
Quicksilver	Cal..	100	...	.....	.....	.....	1.50	.....	1 50	.....	1 75	.....	.....	.....	70
do. pref	"	100	...	.....	.....	.....	6 50	.....	7 00	.....	.....	.....	.....	.....	...
Savage	Nev...	2½	...	.....	.....	.....	.18	.....	.15	.....	.....	.....	.....	.....	...
Sierra Nevada	"	3	...	.....	.....	.....	.25	.....	.28	.....	.....	.....	.22	.....	500
Small Hopes	Colo	20	...	.....	.....	.....	.45	.....	.4	.....	.....	.....	.....	.....	...
Standard Con	Cal..	10	4.20	4.05	...	.....	4.00	.....	4.00	.....	.....	.....	.....	.....	200
Syndicate	"	1	...	.....	.09	.....	...	.....	...	.....	.....	.....	.....	.....	100
Tenn Copper	Tenn	25	14.00	13 00	14.00	13.00	15 00	12.50	14.00	13.50	14 00	13 50	14 00	13.25	...
Union Con	Nev..	2½	...	...	.....	.....	.17	.....	.17	.....	.....	.....	.....	.....	...
Work	Colo	1	...	.....	.32	.....	.32	.....	...	.....	.32	.....	.....	.....	1,100
Yellow Jacket	Nev	3	...	.....	.....	.....	.12	.....	.10	.....	.....	.....	.....	.....	...

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.	.....	$100	37⅝	36¾	37	.....	37⅝	37	37¾	37¼	.....	.....	.....	.....	2,600
" " " pf	.....	100	88¾	88¼	88¼	.....	88¼	88¼	89¾	88¾	89¾	...	...	.....	1 770
Am.S. & W Con	.....	100	32¾	32⅛	33⅛	33⅛	32⅜	31⅝	32⅜	31¾	32¾	31¾	33¾	.....	23,117
" " pf'rn	.....	100	72⅜	72	73⅜	73¼	72	71	72	71¾	7 ⅜	74	73⅜	.....	3 4 0
Am. Tin Plate	.....	100	21¾	.....	.....	.....	.....	.....	20⅜	.....	21	.....	23½	.....	3,931
" " " pf	.....	100	75	.....	.....	.....	.....	.....	73¼	.....	76	.....	80	.....	1,725
Col. Fuel & I.	Colo..	100	...	.....	.....	.....	32¾	.....	33	.....	33¾	33	33	.....	2,30
Col. & H C.& I	" ..	100	14½	13¾	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	200
Federal Steel	.....	100	33	32	32¾	32	33¾	32¾	33	32⅜	33	3.3⅛	33⅛	..	23 815
" " pf	.....	100	67	66¾	65⅜	.....	.....	.....	66	65⅜	.....	.....	66	.....	3,946
Fleming'n C &C	W.Va.	100	25	23	25	23	25	23	25	23	25	23	27	23	.....
Int'l Pump	.....	100	19¾	.9	19⅛	19	18	.....	19¼	18	.....	.....	19	18⅛	.....
National Lead	.....	100	...	.....	.....	.....	20	.....	...	.....	.....	.....	19	...	200
" " pf	.....	100	...	.....	.....	.....	98¾	.....	97¾	.....	.....	.....	.....	.....	...
National Salt	.....	100	...	.....	.....	.....	...	.....	...	.....	.....	.....	.....	.....	...
" " pf	.....	100	...	.....	.....	.....	...	.....	...	.....	.....	.....	.....	.....	$ 140
Nat'l Tube	.....	100	46¾	46	46	...	46	45¾	46	.....	.....	.....	45¾	.....	1,2 0
Press. St. Car	Pa....	100	...	...	44¼	44	44	.....	43¾	.....	.....	.....	43¾	.....	3 1
" " " pf	"	100	...	...	...	...	...	...	75	.....	.....	.....	74	.....	325
Republic I & S	.....	100	12	...	1 9⅜	1¾	12¾	.....	...	.....	11¾	.....	12	.....	69
" " pf	.....	100	...	.....	.....	.....	55¾	.....	54¾	.....	.....	.....	54	.....	1,440
Sloss-Shef.	.....	100	20¾	.....	.....	.....	...	.....	...	.....	.....	.....	.....	.....	...
" " pf	.....	100	64¾	.....	.....	.....	63¾	63¼	...	.....	.....	.....	.....	.....	200
Stan. Oil (N J	.....	100	545	542	545	540	545	541	545	540	545	540	540	537¾	...
Tenn.C.,I.&R.R.	.....	100	*67	65	65⅜	6.¾	65⅜	66¾	67	65¾	66¾	66	67	.....	9,765
" " " pf	.....	100	...	.....	.....	.....	...	.....	...	.....	.....	.....	.....	.....	...
Union Cop	.....	100	2¾	2	2¾	1⅝	2¾	2	2¾	1⅝	2¼	1¾	...	.....	...
U.S. cast I.P&F	.....	100	5	4¼	5	4¼	5	4¾	5	4⅛	5	4¼	5	4⅛	...
" " " pf	.....	100	40	38½	40	38¾	40	38¾	41	38¾	40	38¾	40	38¾	...
Va Coal & C	.....	100	8¾	4¼	5¼	4¼	5¼	4¼	5¼	4¼	6¼	5¼	...	...	...

Total sales, 104,045. * Ex-dividend

PHILADELPHIA, PA.†

Name of Company.	L'cation.	Par Val.	July 12. H.	July 12. L.	July 13. H.	July 13. L.	July 14. H.	July 14. L.	July 16 H.	July 16 L.	July 17. H.	July 17. L.	July 18 H.	July 18 L.	Sales
Am. Alkali	.....	.....	2 25	.....	2 18	.....	2.25	.....	.....	2.00	2.25	.....	2.18	.....	850
" " pf.	.....	.....	...	.....	37½	.....	.....	.....	.....	.....	.....	.....	.....	.....	200
Bethlehem Irn	Pa.	.....	57.00	.....	...	.....	.....	.....	.....	.....	.....	.....	57 00	.....	227
Bethlehem S'l.	"	$50	...	.....	...	.....	.....	.....	15 50	.....	15.00	.....	4 88	...	930
Cambria Iron	"	50	43 25	.....	43 25	.....	.....	.....	43 25	.....	43.25	.....	43 25	.....	163
Cambria St'l.	"	50	6 2	.....	16 15	16.13	16 25	16 13	16.50	16.25	16.25	16 00	16 25	16 13	2,318
Susq. I & S.	"	10	...	.....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	...
United Gas I.	"	50	11 8¾	11 4¾	11 8	.....	11 4⅜	11 8⅜	.....	.....	11 8	.....	.....	.....	191

Total shares sold, 4,879. † Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia

SAN FRANCISCO, CAL.

Name of Company.	Location.	Par value.	July 12	July 13.	July 14.	July 16	July 17	July 18.
Belcher	Nev.	$3.00	.17	.15	....	.15	.14	.14
Best & Belcher	"	3 00	.23	.23	....	.22	.21	.20
Caledonia	"	3.00	1 00	.90	....	.87	.87	.85
Challenge Con	"	3.00	.14	.14	....	.15	.12	.13
Choliar	"	3 00	.21	.18	....	.17	.17	.17
Confidence	"	3.00	.75	.75	....	.70	.70	.70
Con. California & Virginia	"	2 50	1.45	1.45	....	1 45	1 45	1 45
Crown Point	"	3.00	.07	.07	....	.12	.12	.12
Gould & Curry	"	3 00	.24	.23	....	.23	.23	.23
Hale & Norcross	"	3.00	.26	.23	....	.22	.22	.21
Justice	"	2 00	.07	.10	....	.10	.08	.09
Mexican	"	3 00	.18	.18	....	.16	.15	.16
Occidental Con	"	3.00	.09	.07	....	.07	.7	.07
Ophir	"	3.00	.70	.69	....	.69	.67	.67
Potosi	"	3.00	.16	.15	....	.14	.13	.12
Savage	"	2.50	.18	.16	....	.15	.13	.14
Sierra Nevada	"	3 00	.27	.26	....	.26	.26	.26
Standard Con	Cal.	10.00	4 20	4.10	....	4.10	4.10	4 00
Union Con	Nev.	2.50	.20	.20	....	.20	.18	.17
Utah Con	"	1.00	.12	.10	....	.10	.10	.10
Yellow Jacket	"	3.00	.18	.13	....	.13	.18	.18

CALIFORNIA OIL STOCKS.*

Name of Company.	No. of shares.	Par Val.	June 21. H.	June 21. L.	June 22. H.	June 22. L.	June 23. H.	June 23. L.	June 25. H.	June 25. L.	June 26. H.	June 26. L.	June 27. H.	June 27. L.	Sales
Blue Goose	5,000	$100	.....	.....	.....	.....	14.50	.....	.....	.....	.....	.....	.....	.....	...
Buckhorn	16,000	10.00	.....	.....	4.00	.....	4.00	.....	.....	.....	.....	.....	.....	.....	...
Caribou	100,000	1 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...
Home	100,000	1 00	4.20	4 15	4.20	4 15	4 15	4.10	.....	.....	.....	.....	.....	.....	1,150
Homestake	10,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...
National	100,000	5.00	6 10	.....	6.10	.....	6 10	.....	.....	.....	.....	.....	.....	.....	...
Petroleum	100,000	1 00	.50	.....	50	.....	.50	.....	.....	.....	.....	.....	.....	.....	...
San Joaquin	100,000	1 00	3.10	3 00	3 10	.....	3 10	.....	.....	.....	.....	.....	.....	.....	...
Shamrock	100,000	2 50	.81	..	.60	.....	.75	.....	.....	.....	.....	.....	.....	.....	100
West Lake	200,000	1.00	.57	.55	.6.	.50	.58	.55	.....	.....	.....	.....	.....	.....	...
Yukon	100,000	2 50	9	.70	1 00	.60	1.00	.65	.....	.....	.....	.....	.....	.....	...

*California and Producers Oil Exchanges. Total sales 2,850 shares.

BOSTON MASS.†

Name of Company.	Par val.	No. of shares	July 12. H.	July 12. L.	July 13. H.	July 13. L.	July 14. H.	July 14. L.	July 16. H.	July 16. L.	July 17 H.	July 17 L.	July 18. H.	July 18. L.	Sales
Adven'r'e.Cons	$25	100,000	.....	.....	3.75	.....	.....	.....	3.00	.....	2.75	.....	.....	...	275
Aetna, Cons. g	5	100 000	...	.....	.....	.....	.....	.....	.....	.....	1.25	.....	.....	...	100
Alloues	25	80,000	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Amal Cop	100	750,000	86 00	.....	85.50	.....	85 38	.....	85 50	.....	86 00	85.75	86.00	85.50	150
Am. Z. L. & S.	25	60,000	9.00	.....	10.00	9 00	.....	.....	.....	.....	9 00	.....	.....	...	635
Anaconda	1,20 0,000	40 75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	100
Arcadian, c	25	150,000	21.00	20.50	21.50	20.75	20.50	20.25	.....	.....	.....	.....	21.50	20.50	505
Arnold, c	25	60,000	5 25	5.00	...	.....	5.00	.....	.....	.....	.....	.....	.....	...	130
Ashbed	25	40,000	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Atlantic, c	25	40,000	...	.....	22.00	.....	.....	.....	25 00	21 50	.....	.....	.....	...	275
Baltic c	25	100,000	...	.....	.....	.....	18 00	17.00	.....	.....	18.00	.....	.....	...	115
Bingham, c. g.	10	190,000	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Bonanza. Dev.g	10	800,000	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Boston q	10	100,000	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Bos. & Mon, Tr. R	25	150,000	299¼	298	299	298	297¾	....	299	298	3.9	299	307	305	485
Breece	25	200,000	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	300
British Col.	5	200,000	10.75	.....	11 00	.....	.....	.....	.....	.....	.....	.....	.....	...	300
Butte & Bost., c	10	200,000	65 00	.....	65 00	.....	.....	.....	.....	.....	.....	.....	.....	...	70
Cal. & Hecla, c	25	100,000	728	.....	728	.....	728	.....	730	728	730	728	730	...	104
Centennial, c	10	300,000	17 50	17 0	17 25	17.0	7.00	16 25	17.50	.....	.....	.....	17 00	16.75	1,536
Cent'l-Eureka	25	90,000	25.00	...	.5 00	.....	24.50	23.5	.....	.....	23 00	23 50	23.50	24.50	736
Central Oil	25	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Cochiti, g	10	60,050	.....	.....	9.00	8 88	8.50	8.00	8 50	8.25	.....	.....	8.50	8 00	1,463
Cont Zn.Mg&Sm	10	157,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Copper Range	10	110,000	14 75	14.5	.....	.....	.....	.....	14.00	.....	13.00	.....	13.25	13.00	680
Crescent, s	10	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Dominion Coal	25	100,000	29.25	39 00	38 25	.....	.....	.....	.....	.....	38 25	.....	.....	...	100
do. pref	100	150,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Elm River	100	20,000	3 50	.....	4.00	3.50	.....	.....	3.50	.....	.....	.....	3.50	...	540
Federal Steel	12	100,000	33.13	...	33 00	32 2	32.13	.....	33.13	32.25	33.00	32.50	32 88	32 38	1 362
do. pref	100	464,843	.....	.....	65 88	.....	.....	.....	.....	.....	.....	.....	66.00	65.50	170
Franklin, c	100	532,610	14.00	12.75	14.00	.....	.....	.....	.....	.....	.....	.....	.....	...	316
Humboldt	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.75	...	25
I. Royal Con. c.	25	100,000	26 00	25 25	26.00	25.75	26.00	25 00	25.25	.....	26 00	25 75	26.75	26 50	3,4 9
Mass Con	25	100 000	6 50	.....	.....	.....	.....	.....	6 50	.....	.....	.....	.....	...	115
Mayflower	25	10 ,000	2.00	.....	2 00	.....	.....	.....	.....	.....	.....	.....	.....	...	450
Melones	10	167.577	.....	.....	2.00	.....	.....	.....	.....	.....	.....	.....	.....	...	400
Michigan	25	100,000	3 2.	.....	.....	.....	.....	.....	3 25	.....	3 25	.....	3.00	...	300
*Mohawk, c	25	100,000	17 75	17 50	17 75	16 50	17.00	16 50	7.00	16.00	.....	.....	.....	...	930
Montana C. & C	5	100,000	6 75	...	7.88	.....	.....	.....	.....	.....	.....	.....	.....	...	110
N. A. Gold Dreg	10	100,000	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Old Colony	25	100,000	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	3 00	2.75	280
Old Dominion, c	25	150,000	19.25	19.00	19 25	18.0	18.50	18 00	18.50	18 00	18 50	18 00	18 50	...	1,050
Osceola, c	25	93,000	64 38	63.38	64 75	64 00	65.00	64 0.	64 75	64.00	65.0.	64 50	64.75	...	1,148
Parrot, s c	10	229,850	42.00	41 50	40.50	40.00	40 50	39 25	40.00	...	40.00	39.50	40.00	40.00	1,885
Pioneer	10	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Quincy, c	25	100,000	140	...	14 ¾	.....	.....	.....	142	140	142	.....	142	...	47
Rhode Island	25	100,000	.....	...	3.5.	3 00	.....	.....	.....	.....	.....	.....	3.50	...	210
Santa Fe, g, c	10	250,000	...	.....	.....	.....	4 75	.....	.....	.....	.....	.....	.....	...	150
San. Ysabel, g.	5	130,000	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	70
Tamarack, c	25	60,000	193	90	191	.....	.....	.....	.....	.....	193	.....	190	...	164
Tecumseh	25	80, 00	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Tri Mountain	25	100,000	7.25	7.00	.....	.....	.....	.....	7.50	7 25	7.25	.....	7.25	7.00	904
Union C L	25	80,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
United States	25	250,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
U. S. Oil	25	100,000	19 00	16 50	18 75	.....	.....	.....	18.00	.....	.....	.....	.....	...	672
Utah Cons,g, c.	5	300,000	27 75	26 00	27 00	.....	26.75	26 00	26 5	26.38	26 38	.....	27.75	27 50	1,385
Victor	5	200,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Victoria	25	100,000	.....	.....	.....	.....	.....	.....	.....	.....	1 50	.....	.....	...	75
Washington	25	60,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
White Knob	100	50,000	15 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Winona, c	25	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...
Wolverine, c	25	60,000	38.00	37 50	38 50	38.00	38.50	39.00	38.50	...	38.50	.....	39.50	.....	227
Wyandotte	25	160,000	.....	.....	1 28	.....	.....	.....	.....	.....	.....	.....	.....	.....	215

† Official quotations Boston Stock Exchange. Total sales, 21 457. * Ex-dividend.

SALT LAKE CITY, UTAH. July 14.

Stocks.	Shares	Par val.	Bid.	Asked.	Stocks.	Shares.	Par val.	Bid.	Asked
Ajax	300,000	$10	$0 47	$0.51	Horn Silver	400,000	$25	$1 05	$1.25
Alice	400,000	25	.32¾	.....	Joe Bowers	700,000	1	.04½	.05
Buckeye	...	...	.....	.....	Joe Bowers Ext.	4 0,000	¼	.....	.00¾
Bullion-Beck & Ch.	100,000	10	3.40	3 80	Little Pittsburg	400,000	5	.00¾	.03¾
Centennial Eureka	200,000	25	23.50	26 50	Lower Mammoth	150,000	1	.47¾	.48¾
Chloride Point	500,000	1	.05	.09¾	Mammoth	400,000	5	2 09¾	2.10
Daisy	500,000	3	.01¾	.02	May Day	400,000	¾	.9	.9¾
Dalton	500,000	5	.....	.....	Mercur	200,000	25	5 32	5.48
Dalton & Lark	2,500,000	1	.05	.05¼	Northern Light	400,000	5	.04¾	.05
Daly	150,000	20	1 25	1 35	Ontario	150,000	100	6.00	7 22
Daly West	150,000	20	16.52	16 90	Richmond-An.	500,000	1	...	24
Dexter	200,000	5	.62½	.82½	Sacramento	1,000,000	5	20	.23¾
Eagle	250,000	1	.....	.....	Silver King	150,000	20	45.00	...
Eagle & Blue Bell	250,000	1	.67¼	.90	Star Consolidat'd	500,000	1	.23¾	.32
Four Aces	250,000	1	.02	.....	Sunbeam	250,000	1	.02	...
Galena	100,000	10	.....	.....	Sunshine	250,000	10	.04	.20
Geyser-Marion	300,000	5	.05	.08¾	Swansea	100,000	5	3 89¾	4.02½
Golden Eagle	400,000	1	.01	.0 ¾	South Swansea	150,000	1	1.14¾	1 19
Grand Central	250,000	1	5 80	5 90	Utah	100,000	1	.46	...
Homestake	...	...	.....	.07	Valeo	200,000	10	.15¾	.25

TORONTO, ONT.

Name of Company.	Par Val.	July 6 B.	July 6 A.	July 7. B.	July 7. A.	July 9. B.	July 9. A.	July 10. B.	July 10. A.	July 11. B.	July 11. A.	July 12. B.	July 12. A	Sales
Ontario	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Golden Star	1	.08	.09¼	.....	...	...	...	.09	...	09	...	07¾	08¾	52,350
Ham Reef	1	.07¾	.09¾	...	...	...	...	.07¾	.09¼	.07¾	09	.08¾	.08¾	13,400
Olive	1	.15

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.†

NAME OF COMPANY.	Par val	July 9. B.	July 9. A.	July 10. B.	July 10. A.	July 11. B.	July 11. A.	July 12. B.	July 12. A.	July 13. B.	July 13. A.	July 14. B.	July 14. A.	Sales.
Acacia	$1			.88½	.89½	.87½	.87¾	.87½	.88	.93½	.89¾	.88¾	.89½	52,588
Alamo	1			.14½	.15	.14½	.15½	.15	.16	.15		.15¼	.16½	4,000
Am. Con	1			.07¼	.07¼	.07¼	.07¾	.07¼	.08	.07¾	.07¼	.07¼	.07¾	39,560
Anaconda	1			.39¾	.40	.40¾		.41	.45	.46¾	.46¾	.45	.47	16,082
Anchor	1			.03		.03		.03	.03¾	.03¾		.03¾		
AnchoriaL	1			.80	.80					.80		.80		
Antelope	1			.02¾	.03		.03	.02¾	.03	.02¾	.03	.02¾	.03	3,000
Aola	1			.06¼	.06¾	.06¼	.06¾	.06¼	.05¾	.06¼	.06¾		.06¾	12,000
Arcadian	1			.04¾	.05	.04¾	.05	.04¾	.05	.04¾		.04¾	.05	7,000
Arg'ntum J	1			.21		.20¾	.21¾	.21		.28	.29	.28	.30	22,500
Banner	1			.04¾	.04¾	.04¾	.05	.04¾	.05	.04¾	.05	.04¾	.05	5,000
Battle Mt.C.	1				.29¾		.29¾	.28¾	.29	.28¾	.29	.28¾	.29	1,000
Ben Hur	1							.07		.07		.07		
Black Bell	1			.10¾	.11¼	.10¾	.11	.11	.11¼	.12	.13	.14	.15	7,000
Blue Bell	1			.10	.11	.10	.10¾	.10¼	.11	.11	.12	.10¾	.11	17,000
Bob Lee	1			.05¼	.05¾	.05¾	.05¾	.05¼	.05¾	.05¼	.05¾	.05¼	.05¾	43,000
Buckhorn	1			.06¼	.07	.06¼	.06¾	.06¼	.06¾	.06¾		.06¾	.07	6,000
Cadillac	1			.12¾	.02¾	.02¾	.02¼	.02¾	.02¾	.02¾	.02¼	.02¼		28,000
Central C'n	1			.09¼	.09¾	.10¾	.10¾	.12¾	.1.9¾	.14¼	.14¾	.14	.14¼	242,500
Champion	1			.07¾		.07¾	.08	.08¾	.08¼	.08¾	.08¾	.08¼	.08¾	26,000
Chicolo	1			.03		.03	.03¼			.03	.03¼	.03¼	.03¾	16,000
C.K.&N	1			.02¾	.02¼	.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	10,250
C.C.Col'bia	1			.08	.08¾	.03¼	.08¾	.03¼	.08¾	.08¾	.08¾	.08¾	.08¾	27,000
C.O G Ext	1			.10¾	.12	.10¾	.11	.11	.11¼	.12¼	.12¾	.11¾	.12	11,000
C.C. & Man	1			.10¾		.10¾	.11	.10¾	.10¾	.11	.11¼	.11	.11¾	14,500
Copper Mt.	1			.04¼	.04¾	.04¾	.04¾	.04¼	.4.4¾	.04¾	.04¾	.04¾	.04¾	37,000
Creede&CC	1			.14¾	.16	.14¾	.15¾	.14¾	.15¾	.14¾	.15¾	.14¾	.15¾	3,000
C. C. Con.	1				.13¾	.13¾	.13¾	.13¾	.13¾	.13¾	.13¾	.13¾	.13¾	15,000
Dante	1			.13	.14	.13¾	.13¾	.13¼	.13¾	.13¼	.13¾	.13¼	.13¾	5,000
Des Moines	1			.06¼	.06¾	.06¾	.06¾	.06¾	.06¼	.06¼	.07	.06¾	.07¼	4,000
Eclipse	1			.08¾	.09	.08¼	.09	.09	.09¼	.09¼		.10¼	.10¾	51,297
ElktonCon	1			1.32	1.34¾	1.37¾	1.38	1.42¾	1.43	1.43	1.43¾	1.42	1.42¼	58,101
El Paso G	1			.39¾	.40	.39¾		.40	.40¾	.39	.40	.38¼	.39¾	5,500
Enterprise	1			.20¼	.22	.20¼		.21		.21		.22		2,000
F.Rawlings	1			.29	.35	.30	.34¼	.30		.31		.31	.35	5,500
Favorite	1													
Findley	1			.14¾		.14¾	.15	.14¾	.15	.14¼	.15	.14¾	.14¾	10,000
Garf. Con	1				.16		.16		.16	.09¾	.10	.09¾	.10¾	4,000
Golden Fl	1						.40		.40					
Gold Hill	1			.04¾	.04¼	.04¾	.04¾	.04¾	.04¾	.04¼	.05	.04¾	.04¾	195,000
Gold.Sov'n.	1			.11	.11¾	.10¾	.11	.10¾		.10¾	.11	.10¼	.10¾	45,001
Hayden	1				.02	.01¾	.02	.01¾	.02	.01¾	.02	.01¾	.02	10,000
Ida May	1			.32¼	.33¼	.32	.32¾	.32		.32¾	.32¾	.32¾	.34	7,000
Indep'ndce	1			.44½	.46	.44	.45¾	.44	.45	.44	.46	.44¼	.45	16,200
Ing. Con	½			.21¾	.22	.20	.21¾	.21¾	.21¾	.20¾	.21¼	.20¾	.21¼	16 031
Isabella	1			1.25	1.26	1.27¾	1.28	1.25¾	1.26	1.25¼	1.26¼	1.25¾	1.26	21,300
Jack Pot	1				.57		.57	.52	.56	.45	.56	.50		500
Josephine	1			.02¾		.02¾	.04¾	.02¾	.02¾	.02¾	.02¾	.02¾	.03¾	4,000
Key West	1			.04¾		.03¾		.03¾		.04¾		.03¾	.04	52,000
Lexington	1			.17¼	.17¾	.17¾	.18	.17¾	.18	.17¾	.17¾	.17¼	.17¾	12,000
Magnet R	1			.04¾	.04¾	.04¾	.04¼	.04¾	.04¾	.04¼	.04¾	.04¼	.04½	44,000
Margaret	1			.02¾	.02¾	.02¾	.02¾	.02¾	.02¾	.0.4	.03	.02¾	.03	19,000
Margery	1					.03¾	.04¼			.03¾	.04	.03¾	.04	88,000
Matoa	1			.35¼	.36	.35¾	.35¾		.35	.35	.37	.35¼	.37	6,500
Midway	1			.06¼	.06¾	.06¾	.06¾	.06¾	.06¼	.06¼	.06¾	.06¼	.06¾	27,000
M J T	1			.04¼	.04¾	.04¼	.04¾	.04	.04¼	.04¼		.04¾	.04¾	19,000
Mobile	1			.03¾	.03¾	.03¾	.03¾	.03¼	.03¾	.04	.04¼	.04	.04¾	28,000
Moll.Dwyer	1			.07¼	.08	.07¾	.07¾	.07¾		.07¼	.07¾	.07¾	.07¾	147,000
Mollie Gib.	1				.24	.24	.24	.22¾	.23	.23	.23¾	.24	.24¾	4,500
Monarch	1			.08¼	.0.5¾	.08¼	.05¾	.09¾	.09¼	.08¾		.08¾	.09	7,000
Montreal	1			.07¾	.08¼	.08	.08¾			.07	.08	.07	.08	1,000
Moon-A'c'r	1			.57	.59	.57	.60	.57¼	.59	.57	.59	.57	.59	2,800
Morning 5	1			.03¼	.03¾	.03¾	.04	.04¾	.04¼	.04¼	.05	.04¾	.04¾	64,000
Min. Beauty	1			.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¼	.09¾	6,000
Mt Rosa	1				.75		.75		.75		.75		.75	
National	1			.13¾	.14	.13¼	.13¾	.13½	.13¾	.13¾	.13¾	.13¼	.13¾	200,000
Nellie V	1			.12	.13		.13¾	.12	.13	.12¾	.13	.12	.12¾	1,000
New Haven	1			.08¾	.08¾	.08¾	.08¾	.08¾	.09	.08¾	.08¾	.08¾	.08¾	39,000
OliveB'nch.	1			.06¼	.06¾	.06¾	.06¾	.06¾	.0.5¾	.06¼		.06¾	.07	32,000
Oriole	1													
Orphan	1			.18	.18¼	.18	.19	.18		.18¾		.18	.21	5,000
Pelican	1			.02¾		.02¾		.02¼	.05¼	.02¾		.07¼	.08	2,000
Pharmacist	1			.12¾	.13¼	.13	.13¼	.12¾	.13	.13¼	.13¼	.13¼	.13¾	32,000
Pilgrim	1			.13¼		.13	.13¼	.13	.13¼	.13¾	.13¾	.13¼	.13¾	10,000
Pinnacle	1			.21¾	.22¾					.22	.21¾	.22¼		5,000
Portland	1			$.02¾	$ 0.06¾	$.05		$ 00	$.18	$.05	$ 12	$.00	$ 10	400
Prince Alb.	1			.04¼		.04¾	.04¾	.04		.04¾	.04¾	.04¾	.04¼	17,000
Princess	1			.06		.06¼	.06¾	.06¼	.06¾	.06¼	.06¾	.06¾	.06¾	8,000
Progress	1					.05	.06		.06	.05¾	.06	.05¼	.05¾	20,000
Pythias	1			.06¾	.06¼	.06¼	.06¼	.06¾	.07¼	.06¾	.07	.06¾	.07	7,000
Raven	1													
Republic	1			.06¾	.06¾	.06¼	.06¾	.06¼		.06¼	.07	.06¼	.07	21,500
Rob'tBurns	1			.04¾	.05	.05¼	.05¼	.05¾		.06¾	.07	.06¾	.07	166,000
Rose Maud	1			.09¾	.09¾	.09¾	.09¾	.09¾	.10	.09¾	.09¾	.09¾	.09¾	7,000
Rose Nicol	1			.13½	.13¾	.13	.14	.13	.13¾	.13	.13	.13¾	.13	3,500
Silver Gold	1			.01¾	.01¾	.01¾	.01¾	.01¾	.02	.02	.02¼	.02	.02¾	65,000
Specimen	1													
Theresa	1			.07¾	.0.8¾	.07¾	.08¼	.07¾	.08¼	.08¾	.08¾	.08¼	.08¾	32,000
Trachyte	1			.07¾	.07¾	.06¾	.07¼	.07	.07¾	.07¾	.07¾	.07¼	.07¾	14,000
Uncle Sam	1			.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	9,000
Union	1			40	.46	.40	.46	.39	.46	.40	.46	.46	.46	85
Va. M	1			.10¾	.11	.10¼	.10¾	.10¾	.10¾	.10¾	.10¾	.10¾	.11	31,000
Vindicator	1				1.48	1.47		1.47	1.48	1.45¼	1.50	1.45	1.52	10,700
Work	1			.30¼	.30¼		.30	.29¾	.30	.30¼	.30¼	.30¾	.30¾	26,000
Zenobia	1			15	.15¾	.15¼	.15¼	.15	.15¼	.15	.15¼	.15	.15¾	1,000

Colorado Springs Mining Stock Exchange. Total sales, 2,407,203 shares.

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	July 9. B.	July 9. A.	July 10. B.	July 10. A.	July 11. B.	July 11. A.	July 12. B.	July 12. A.	July 13. B.	July 13. A.	July 14. B.	July 14. A.	Sales.
Alamo	1													500
Anaconda	5			.86¼	.40	.87½	.40	.89¾	.40¼				.46	4,000
Aola	1			.06¼	.06¾									7,000
Arg. J	1								22	.26				
C. K & N.	1			.02¾	.02¾	.02½	.02¾			.02¾	.02¾			8,000
Dictator	1			.02½		.04¾	.02¼	.02¾	.03	.02¾	.02¾	.02¾	.02¾	12,000
Elkton	1			1.32	1.32½			1.37						100
Findley	1							.14	.15					
Gold Sov'n.	1			.11¾	.11¾					.10¾	.10¾		.11	7,000
Golden Age	1					.03¼	.03¼	.03¼	.03⅝					
Indepen'ce	1					.41¾				44	.44¼	.44¼	.45¾	2 000
Iron Clad	1							.05¾		.06	.06¼			25,000
Isabella	1			1.26¼				1.25	1 30		1.28	1.2.¾	1 2¾	1,200
Magnet R'k	1			.04¼	.04¾	.03¼	.03¾			.04	.04¼	.04¾	.05	3,600
National	1			.13¼	.14¼	.14¼	15	.13¼	.13¾	.13¾	.13¾	.13¾	.13¾	4,000
New Haven	1			.08¾	.08¾	.08¼	.08¾	.08¾	.08¼	.08¼	.09			14,000
New Zeal'd	1			.58¾	.70	.62¾	.70	.61¾	.70	.57¾	.70	.51¾	.75	
Old Gold	1			.01¾	.02	.01¾	.02		.02	.01¾		.01¾	.02	
Omega	1					.05¾						.06		
Ophir	1													
Puritan	1						.01¾	.01¾			.56	.61		
Union	1					.40¼							.01¾	.01¾	3,000
Vindicator	1													2,000
Wh.of Fort	1									01¾			.01¾		2,000

‡ Official Quotations Denver Stock Exchange Total sales, 94,800 shares.

PARIS.

June 28.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Aciéries de Creusot	France	Steel mfrs.	27,000,000	2,000	75.00	1,830.00	1,840 00
" " Firminy	"	" "	3,000,000	500	125.00	3,500.00	3,500.00
" " Fives-Lille	"	" "	12,000,000	500	35.00	525.00	520 00
" " Huta-Bank	Russia	Iron & steel		500		4,470.00	4,470.00
" " la Marine	France	Steel mfrs.	20,000,000	500	70.00	1,650.00	1,655 00
Anzin	"	Coal			220.00	6,650.00	6,575.00
Boleo	Lower Cal.	Copper		500	176.00	2,740.00	2,690.00
Briansk	Russia	Coal & Iron		500		975.00	866.00
Champ d'Or	S. Africa	Gold	3,375,000	25	3.75	38.25	38.00
Courrieres	France	Coal	600,000	300	70.00	2,899.00	2,885.00
Dombrowa	Russia	Coal		500	12.50	990.00	975.00
Donets	"	Steel				91.00	900.00
Dynamite Centrale	France	Explosives		500	20.00	434.00	430.00
Escombrera-Bleyberg	Spain	Lead		500	35.00	1,260.00	1,238.00
Fraser River	Brit. Col'mb	Gold	250.000	25		9.25	8.50
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	187.50	186.00
Laurium	Greece	Zinc & lead	16,800,000	500	30.00	581.00	580.00
Malfidano	Italy	Zinc	12,500,000	500	50.00	1,200.00	1,200.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	30.00	480.00	477.50
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,176.00	1,200.00
Naphte Baku	Russia	Petroleum				826.00	823 00
Naphte, Le	"	"				1,800.00	1,800.00
Naphte Nobel	"	"				697.50	687.50
" " parts	"	"				13,750.00	13,750.00
Nickel	N. Caled'nia	Nickel	10.000.000	250	10.00	470.00	465.00
Penarroya	Spain	Coal, etc.		500	95.00	2,700.00	2,720 00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25		3.75	4 00
Salines de l'Est	France	Salt		500	6.50	269.00	255.00
Salines du Midi	France	" etc		500	25.00	950.00	950.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	36.00	725.00	705.00

LONDON.

June 29.

NAME OF COMPANY.	Country.	Authorised capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
			£ s. d.	s.d.		£ s. d.	£ s. d
Alaska Goldfields	Alaska	£300,000	1 0 0	2 1	Mar., 1899	15 0	17 6
Alaska-Mexican, g	"	200,000	1 0 0	0 4.8	May, 1900	17 6	1 0 0
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	5 1 3	5 3 9
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2	Apr., 1900	8 7 6	8 12 6
De Lamar, g., s	Idaho	400,000	1 0 0	6	May, 1900	3 0	4 0
Golden Gate, g	California	80,000	1 0 0			1 0	2 0
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Jan., 1900	15 0	17 6
Hall Mines, c., s	British Col.	300,000	1 0 0	1 0	May, 1899	1 0	1 6
Le Roi, g	"	1,000,000	5 0 0	5 0	Nov., 1899	6 7 6	6 10 0
Lillie, g	Colorado	250,000	1 0 0	2½	Apr., 1900	7 6	12 6
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	3 0	4 0
Mountain Copper	California	1,250,000	5 0 0	11 0	Apr., 1900	5 7 6	5 12 6
Newfoundland, c	Newfoundland	280,000	1 0 0			2 6	7 6
Palmarejo & Mexican, g	Mexico	700,000	1 0 0			1 0	1 6
*Stratton's Independence	Colorado	1,100,000	1 0 0	2 0	June, 1900	2 12 6	2 15 0
Copiapo, c	Chile	200,000	2 0 0	4 0	July, 1900	3 17 6	4 2 6
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	1 10 0	1 12 6
*St. John del Rey, g	Brazil	600,000	1 0 0	1 6	June, 1900	1 7 6	1 10 0
UtahCon. g (High'l'ndBoy	Utah	300,000	1 0 0	rts.	Mar., 1898	4 15 0	5 5 0
Velvet, g	BritishCol'mbia	100,000	1 0 0			1 0 0	1 2 6
Ymir, g	"	200,000	1 0 0	1 0	Nov., 1899	1 8 9	1 11 3
British Am. Corp	"	1,500,000	1 0 0	2 0	Mar., 1900	14 0	14 6
Linares, l	Spain	45,000	3 0 0	15 0	Mar., 1900	9 0 0	10 0 0
Mason & Barry, c., sul	Portugal	420,000	2 0 0	10 0	May, 1900	3 15 0	4 0 0
Rio Tinto, c	Spain	1,625,000	5 0 0	45 0	May, 1900	52 2 6	52 7 6
" " pref	"	1,625,000	5 0 0	2 6	" 1900	6 2 6	6 5 0
Tharsis, c	"	1,250,000	2 0 0	15 0	Apr., 1900	7 17 6	8 2 6
Assoc. Gold Mines	W. Australia	500,000	1 0 0	1 6	Jan., 1900	3 7 6	3 10 0
Broken Hill Prop., s	N.S. Wales	384,000	8 0	1 0	Apr., 1900	2 8 6	2 9 6
Great Boulder Prop	W. Australia	175,000	2 0	6	Apr., 1900	1 12 0	1 13 0
Hannan's Brownhill, g	"	140,000	1 0 0	7 6	May, 1900	8 5 0	8 10 0
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	July, 1900	10 10 0	10 12 6
Kalgurlie, g	"	120,000	1 0 0	rts	Oct., 1899	6 2 6	6 7 6
Lake View Consols, g	"	250,000	1 0 0	5 0	Aug., 1900	13 18 9	14 1 3
Mt. Lyell M. & R., l., c	Tasmania	900,000	3 0 0	5 0	July, 1900	7 17 6	8 2 6
Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	June, 1900	4 16 3	4 18 9
Waihi, g	New Zealand	320,000	1 0 0	2 6	June, 1900	9 17 6	10 0 0
Champion Reef, g	Colar Fields	230,000	10 0	4 0	May, 1900	5 15 0	5 17 6
Mysore Gold, g	"	250,000	10 0	4 0	July, 1900	6 5 0	6 7 6
Nundydroog, g	"	242,000	1 0 0	2 0	July, 1900	3 5 0	3 7 6
Ooregum, g	"	145,000	1 0 0	3 6	Aug., 1900	3 15 0	3 17 6
" pref. g	"	120,000	1 0 0	3 6	1900	4 15 0	5 0 0
British S. Af., chartered	So. Africa	5,000,000	1 0 0	rts.	May, 1899	3 6 3	3 7 6
Cape Copper, c	"	600,000	1 0 0	5 0	July, 1900	5 18 9	5 16 3
" pref	"	150,000	2 0 0	3 0	" 1900	5 5 0	5 10 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug., 1899	5 12 6	5 17 6
Con. Deep Level, g	"	200,000	1 0 0	x all	June, 1898	1 5 0	1 10 0
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	15 10 0	15 15 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	£1	Sept., 1899	26 12 6	26 17 6
Ferreira, g	Transvaal	90.000	1 0 0	30 0	Aug., 1899	21 0 0	22 0 0
Geldenhuis Deep, g	"	350,000	1 0 0	8 0	Aug., 1899	9 15 0	10 5 0
Geldenhuis Est., g	"	200,000	1 0 0	10 0	Aug., 1899	6 7 6	6 12 6
Henry Nourse, g	"	125,000	1 0 0	10 0	Aug., 1899	8 7 6	8 12 6
Jagersfontein, d	Orange Fr. St.	1,000,000	5 0 0	6 0	Apr., 1900	16 0 0	16 10 0
Johannesburg Con. Invst.	So. Africa	2,750,000	1 0 0	2 0	Nov., 1899	2 1 3	2 3 9
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Aug., 1899	6 0 0	6 10 0
Langlaagte Estate, g	"	470,000	1 0 0	3 0	Sept., 1899	3 2 6	3 7 6
May Con., g	"	290,000	1 0 0	6 6	Aug., 1899	4 10 0	4 12 6
Meyer & Charlton, g	"	100,000	1 0 0	8 0	July, 1899	5 0 0	5 5 0
Namaqua, c	Cape Colony	200,000	2 0 0	12 0	June, 1899	4 8 9	4 11 3
Primrose (New), g	Transvaal	300,000	1 0 0	6 0	Aug., 1899	3 18 9	4 1 3
Rand Mines, g	So. Africa	490,000	1 0 0	15 0	Aug., 1899	40 12 6	40 17 6
Robinson, g	Transvaal	2,750,000	5 0 0	8 0	Aug., 1899	8 12 6	8 17 6
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1898	1 2 6	1 5 0
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	6 3 9	6 6 3
Wolhuter, g	"	860,000	4 0 0	2 0	Feb., 1899	4 10 0	4 15 0

*Ex-dividend.

MONTREAL CANADA.*

NAME OF COMPANY.	Par Val	Week, July 16. H.	L.	Sales.	NAME OF COMPANY.	Par Val	Week, July 16. H.	L.	Sales.
Big Three	$1	.02¾	.01¾	17,000	Monte Christo	$1	.03¾	.04¼	
California	1	.09¾	07	1,000	Montreal G. F	"	.03	.04¾	
Can. Gold Fields	0.10	.04¾	03¾	2,500	Montreal-London	0.24	.23¾	.25	3,814
Decca	1	.04¾	.04		Oregon	1	.16	.17	6,000
Deer Trail Con	1	.05	.05¾	2,00.	Payne	1	.90	1 00	
Giant	1				Rambler-Cariboo	1	.16	26¼	
Golden Star	1	.07¾	.09¼	1,000	Republic Con	1	.87¼	.96	
Gold Hills Dev	1	.02	.03		Slocan-Sovereign	1	.18	.26	1,000
Knob Hill	1	.34	45	1,000	Virtue	1	59	.70	2,750
Majestic	1				War Eagle	1	1 42¼	1.55	500

*Montreal Stock Exchange. Total sales, 33,564 shares.

MEXICO.

July 7.

NAME OF COMPANY.	No. of shares.	Last div'd.	Prices. Op'g.	Prices. Cl'g.	NAME OF COMPANY.	No. of shares.	Last div'd	Prices. Op'g.	Prices. Cl'g.
Durango:					**Hidalgo:**				
Barradon y Cab	2,400		$40	$30	Real del Monte	2,554	10.00	580	600
Candelaria de Pan.	1,200		20	20	San Francisco Hc	6,000	8.00	145	100
Capusaya Guan	2,400		15	12	Soledad	960	5.00	270	230
Restauradora	10,000		10	20	Sorpresa	960	7.50	280	260
Guanajuato:					Union Hacienda	2,000	5.00	230	220
Angustias	2,400	5.00	135	130	**Mexico:**				
Cinco Senores y An	2,000	15.00	33	3.0	Coronas	500		75	75
Guadalupe Hacie'a	10,000	2.00	205	200	Esperanza y An	3,000	10.00	1 250	1,200
Trinidad, aviadora	2,000		15	6	**Michoacan:**				
do. aviada	400		15	10	Luz de Borda ava	4,000		18	12
Zona Minera de Pos	2,400		6	8	**S. Luis Potosi:**				
Hidalgo:					Concep. y An	2,400		260	275
Amistad y Concord	9,600	1.47	15	19	**Zacatecas:**				
Arevalo	720		200	200	Asturiana y An	2,500	10.00	170	175
Bartolome de Med	2,000	2.00	65	70	Cabezon	2,400		15	15
Carmen	1,100	7.75	250	200	C'delar. de Pinos	2,500		240	270
Luz Ca Maravillas	800		120	100	Palma de Somb	2,400		50	40
Pabellon	800	27.89	30	30					

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Author-ized Capital Stock.	Shares Issu'd No.	Par Val	Dividends. Paid, 1900.	Total to Date.	Latest. Date.	Amt.
1	Acacia, g.	Colo..	$1,500,000	1,500,000	1	$15,000	$15,000	June. 1900	.01
2	Ætna Con., q.	Cal..	500,000	100,000	$5	30,000	225,000	April 1900	.15
3	Alabama Coal & Iron, pf	Ala...	2,500,000	25,000	100	87,500	87,500	May.. 1900	1.75
4	Alaska-Mexican, g.	Alask	1,000,000	180,000	5	36,000	465,031	April. 1900	.10
5	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	150,000	4,370,000	April. 1900	.37½
6	Alice, g. s.	Mont.	10,000,000	400,000	25		1,075,000	April. 1898	.05
7	Alliance, g.	Colo..	500,000	450,000	1		31,500	Dec.. 1899	.07
8	Amalgamated, c.	Mont.	75,000,000	750,000	100	4,500,000	6,000,000	July.. 1900	2.00
9	Amanda, g.	Colo..	1,000,000	1,000,000	1	10,000	10,000	June. 1900	.01
10	Amazon, g.	Colo..	600,000	600,000	1	102,000	121,882	May.. 1900	.10
11	American Coal	Md...	1,500,000	60,000	25	195,000	922,000	June. 1900	2.00
12	American Gold, g. s. c. l.	Colo..	3,000,000	300,000	10		446,000	Dec.. 1899	.04
13	Amer. Sm & Ref., pref.	U. S..	32,500,000	325,000	100	1,832,650	2,401,425	July.. 1900	1.75
14	Am. Steel & Wire, pf.	U. S..	40,000,000	400,000	100	2,100,000	4,900,000	July.. 1900	1.75
15	Am. Steel & Wire, com.	U. S..	50,000,000	500,000	100	1,750,000	1,750,000	July.. 1900	1.75
16	Am. Zinc, Lead & Sm.	Mo...	2,500,000	60,000	25	60,000	180,000	Jan.. 1900	1.00
17	Anaconda Copper	Mont.	30,000,000	1,200,000	25	2,400,000	14,550,000	April. 1900	2.00
18	Anchoria-Leland, g.	Colo..	600,000	600,000	1		198,000	April. 1899	.03
19	Anglo-Mexican, g.	Mex..	2,001,625	400,230	5		1,825,048	Dec.. 1899	.24
20	Apollo Con., g.	Alask	1,000,000	100,000	10	70,000	210,000	Jan.. 1900	.07
21	Appie Ellen, g.	Colo.	600,000	600,000	1		25,000	Aug.. 1898	.01
22	April Fool, g.	Nev..	500,000	500,050	1		16,000	Oct.. 1899	.01
23	Argentum-Juniata, g.	Colo..	1,300,000	650,000	2		156,000	Oct.. 1895	.03
24	Argonaut, g.	Cal..	2,000,000	200,000	10	70,000	490,000	May.. 1900	.05
25	Arizona Copper	Ariz..	3,190,550			443,486	1,331,905	May.. 1900	.70
26	Associated, g.	Colo..	1,250,000	1,250,000	1		84,000	Feb.. 1899	.01
27	Atlantic, c.	Mich.	1,000,000	40,000	25	80,000	860,000	Feb.. 1900	2.00
28	Bald Butte, g. s.	Mont.	250,000	250,000	1		769,648	Dec.. 1899	.03
29	Bankok Cora Belle, s.	Colo..	600,000	600,000	1		107,510	July.. 1896	.01
30	Battle Mtn. Con., g.	Colo..	2,500,000	2,500,000	1				
31	Big Seven, g.	Cal..	100,000	100,000	1		6,000	April 1898	.03
32	Big Six, g. s.	Colo..	500,000	500,000	1		15,000	May.. 1898	.00½
33	Boston-Aurora, pref.	Mo...	800,000	32,000	25	37,120	66,160	May.. 1900	.50
34	Boston & California	Cal..	600,000	600,000	1		72,000	June. 1899	.06
35	Boston & Colo. Smelting	Colo..	750,000	15,000	50	33,750	303,750	July.. 1900	.75
36	Boston Duenweg, z.	Mo...	1,000,000	40,000	10	24,000	56,900	June.. 1900	.10
37	Boston Get There, z.	Mo...	250,000	22,500	10	9,000	20,250	April. 1900	.10
38	Boston-Little Circle, z.	Mo-K.	1,000,000	100,000	10	12,500	87,500	Mar.. 1900	.12½
39	Boston & Mont. Con.	Mont.	3,750,000	150,000	25	2,700,000	17,200,000	May.. 1900	10.00
40	Boston Providence, z., pf	Mo...	150,000	15,000	10	4,500	15,742	June. 1900	.05
41	Boston, q.	Cal..	1,000,000	100,000	10	10,000	20,000	Jan.. 1900	.10
42	Boston Springfield, z.	Mo...	500,000	20,000	25	15,000	15,000	June. 1900	.25
43	Boston Sunflower, z.	Mo...	150,000	15,000	10		4,500	Oct.. 1899	.30
44	Breece, i.	Colo..	5,000,000	200,000	25	10,000	80,000	Feb.. 1900	.05
45	Buffalo Hump, g.	Idaho	3,000,000	300,000	10	155,000	155,000	July.. 1900	.10
46	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	60,000	2,498,000	June. 1900	.10
47	Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	147,000	948,090	July.. 1900	.07
48	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	3,000,000	69,850,000	June.. 1900	10.00
49	Cambria Steel	Pa...	16,000,000	320,000	50	230,000	1,440,000	May.. 1900	.50
50	Cariboo-McKinney, g.	B.Col	800,000	800,000	1		311,965	June. 1899	.01½
51	Centen l-Eureka, g.s.l.c.	Utah.	5,000,000	100,000	25	117,700	2,267,700	April. 1900	1.00
52	Center Creek, l. z.	Mo...	1,000,000	100,000	10	10,000	10,000	Feb.. 1900	.10
53	Central Lead, l.	Mo..	1,000,000	10,000	100	30,000	172,000	June. 1900	.50
54	Champion, g. s.	Cal..	340,000	34,000	10		321,700	Nov.. 1899	.25
55	Charleston, p. r.	S. C..	1,000,000	10,000	100		200,000	June. 1899	2.00
56	Cloverdale, z.	Mo...	1,000,000	100,000	10	50,000	50,000	July.. 1900	.20
57	Colonial, l.	Mo...	1,000,000	1,000,000	1		10,000	Aug.. 1899	.01
58	Colorado Smelting	Mont.	1,000,000	100,000	10		1,945,000	Jan.. 1899	1.00
59	Columbia, l.	Mo...	500,000	48,500	10	14,550	14,550	June. 1900	.10
60	Commodore, g.	Colo..	1,200,000	1,200,000	1		432,000	Jan.. 1899	.04
61	Commonwealth, z., pref.	Mo ..	500,000	100,000	5	30,000	50,000	June. 1900	.05
62	Consolidated Gold Mines	Colo..	1,000,000	1,000,000	1	50,000	60,000	June. 1900	.02
63	Consolidation Coal	Md...	10,250,000	102,500	100	205,000	5,921,650	Feb.. 1900	2.00
64	Con. Mercer Gold Mines.	Utah.	5,000,000	1,000,000	5	75,000	1,441,000	April. 1900	.12½
65	Cons. Zinc & Lead, pf.	Mo...	400,000	400,000	1	8,000	8,000	Jan.. 1900	.20
66	Continental, z.	Mo...	1,500,000	150,000	10				
67	Cordell, z. l.	Mo...	300,000	60,000	5	18,000	21,000	June. 1900	.05
68	Cripple Creek Con., g.	Colo..	2,000,000	2,000,000	1	160,000	160,000	Mar.. 1900	.08
69	Cresus, g.	Cal..	1,000,000	190,000	5	45,600	93,100	June. 1900	.06
70	Crowned King, g. s. l.	Ariz.	6,000,000	600,000	10		242,760	May.. 1899	.02
71	Dalton & Lark, g. s. l.	Utah.	2,500,000	2,500,000	1		87,500	Mar.. 1896	.00½
72	Daly, g.	Utah.	3,000,000	150,000	20		2,925,000	Mar.. 1897	.25
73	Daly West, g.	Utah.	3,000,000	150,000	20	262,500	382,500	June. 1900	.25
74	Damon, g.	Colo..	2,000,000	2,000,000	1				
75	Deadwood-Terra, g.	S. D..	5,000,000	200,000	25		1,350,000	May.. 1898	.15
76	Deer Trail Con., g.	Wash	3,000,000	3,000,000	1		55,000	Dec.. 1899	.00½
77	De Lamar, g. s.	Idaho	2,000,000	400,000	5	48,000	2,394,000	May.. 1900	.12
78	Della S., g.	Colo.	1,000,000	1,000,000	1		60,000	Jan.. 1897	.01
79	Delta, l. z.	Mo...	100,000	100,000	1	5,370	9,470	June. 1900	.01
80	Denver & Cripple C'k, g.	Colo..	1,000,000	1,000,000	1	10,625	10,625	June. 1900	.01⅝
81	Desloge Con., l.	Mo..	1,000,000	100,000	10	20,000	70,000	May.. 1900	.20
82	Dixie, g.	Utah.	125,000	125,000	1	10,000	10,000	April. 1900	.02
83	Doe Run, l.	Mo...	500,000	5,000	100	15,000	105,000	June. 1900	.50
84	Ducktown, c. i. sul. (ord).	Tenn.	374,000	7,480	50		95,744	Dec.. 1899	9.60
85	Ducktown (founder).	Tenn.	1,000	200	5		41,160	Dec.. 1899	102.00
86	Dutch, g.	Cal..	1,500,000	130,000	10		39,000	Feb.. 1898	.05
87	Eldorado, g.	Cal..	1,000,000	100,000	10		10,000	July.. 1899	.10
88	Elkhorn, New, s. l.	Colo..	437,500	87,500	5		1,325,000	June. 1898	.48
89	Elkton Con., g.	Colo..	3,000,000	2,500,000	1	158,750	873,961	June. 1900	.03
90	El Paso, g. s.	Colo..	900,000	900,000	1		12,393	Jan.. 1898	.01
91	Empire State-Idaho.	Idaho	1,000,000	98,514	10	206,879	524,917	July.. 1900	.30
92	Enterprise, s. l.	Colo..	500,000	500,000	1		900,000	Sept.. 1898	.05
93	Fanny Rawlings, g. s.	Colo..	1,000,000	1,000,000	1		20,000	Aug.. 1899	.01
94	Favorite, g.	Colo..	1,200,000	1,200,000	1	48,000	48,000	April. 1900	.04
95	Federal Steel, pf.	U. S..	100000,000	532,610	100	4,127,727	5,725,587	July.. 1900	1.75
96	Federal Steel, com.	U. S..	100000,000	464,843	100	1,743,161	1,743,161	Mar.. 1900	2.50
97	Fern, g.	B.Col	200,000	200,000	1		10,000	Jan.. 1898	.05
98	Ferris-Haggarty, c.g.s.	Wyo.	1,000,000	1,000,000	1		5,000	Feb.. 1899	.00½
99	Florence, s.	Mont.	2,500,000	440,000	5	22,000	252,000	April. 1900	.05
100	Frisco Con., l. s.	Idaho	2,500,000	500,000	5		920,000	Nov.. 1899	.25
101	Galena, s. l. g.	Utah.	1,000,000	100,000	10		71,000	Sept.. 1897	.05
102	Garfield Con., g.	Colo..	1,200,000	1,200,000	1		34,000	May.. 1899	.01
103	Geyser-Marion, g.	Utah.	1,500,000	300,000	5		96,000	Sept.. 1898	.02
104	Gold Coin of Victor, g.	Colo..	1,000,000	1,000,000	1	120,000	480,000	June. 1900	.02
105	Gold Deposit, g.	Colo..	500,000	500,000	1	10,000	10,000	Mar.. 1900	.02
106	Gold & Globe, g.	Colo..	750,000	750,000	1		51,625	July.. 1898	.00½
107	Gold King, g.	Colo..	1,000,000	1,000,000	1	90,000	180,000	June. 1900	.03
108	Gold Sovereign, g.	Colo..	3,000,000	3,000,000	1				
109	Golden Cycle, g.	Colo..	1,000,000	200,000	5	60,000	318,500	June. 1900	.05
110	Golden Eagle, g.	Colo..	500,000	500,000	1	5,000	25,000	June. 1900	.01
111	Golden Fleece, g. s.	Colo..	600,000	600,000	1		569,480	Feb.. 1897	.01
112	Golden Reward, g.	S. D..	1,000,000	100,000	10		155,000	Feb.. 1898	.15
113	Golden Star, g.	Ont..	1,200,000	1,200,000	1		45,500	July.. 1899	.00½
114	Grafton, g.	Colo..	1,000,000	1,000,000	1		10,000	Oct... 1899	.01
115	Grand Central, g.	Utah.	250,000	250,000	1		666,250	Sept.. 1899	.24
116	Grand Gulch	Ariz..	250,000	240,000	1	9,600	9,600	April. 1900	.01
117	Grass Valley Expl	Cal..	100,000	30,000	2	37,500	67,500	May.. 1900	.25
118	Greater Gold Belt, g.	Col ..	5,000,000	3,800,000	1	76,000	76,000	June. 1900	.02
119	Gwin, g.	Cal.	1,000,000	100,000	10	5,000	91,500	May.. 1900	.25
120	Hall Mines, Ltd	B. Col	1,500,000	250,000	5		120,000	May.. 1899	.24
121	Hecla Con.	Mont	1,500,000	30,000	50		2,190,000	Dec.. 1898	.50
122	Hidden Treasure, g.	Cal..	$500,000	360,000	$1		$3,600	July.. 1899	.01
123	Holy Terror, g.	S. D..	500,000	500,000	1	$5,000	172,000	Jan.. 1900	.01
124	Home, g.	Colo..	50,000	50,000	1	75,000	75,000	June. 1900	.50
125	Homestake, g.	S. D..	21,000,000	210,000	100	630,000	8,773,750	June. 1900	.50
126	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	20,000	5,270,000	June. 1900	.05
127	Idaho, g.	Idaho	1,000,000	1,000,000	1	8,188	8,188	April. 1900	.01
128	Idaho, s. l.	B.Col	500,000	500,000	1		292,000	Jan.. 1899	.05
129	Independence Town & M	Colo..	1,250,000	1,250,000	1	50,000	50,000	June. 1900	.01
130	International, z.	Mo...	1,000,000	1,000,000	1	26,427	26,427	July.. 1900	.01
131	Iowa. g. s. l.	Colo..	1,666,667	1,666,667	1	39,334	136,834	June. 1900	.00½
132	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10		507,500	April. 1898	.02
133	Iron Silver, s l.	Colo..	10,000,000	500,000	20		2,500,000	April. 1889	.20
134	Isabella, g.	Colo..	2,250,000	2,250,000	1	135,000	675,000	June. 1900	.03
135	Jack Pot, g.	Colo..	1,250,000	1,250,000	1		75,000	Dec.. 1899	.06
136	Jamison, g.	Cal ..	3,900,000	390,000	10		50,700	April. 1899	.10
137	Keystone, g.	Colo..	1,500,000	1,500,000	1		35,000	Mar.. 1894	.01½
138	Klondike Bonanza, Ltd.	Klond	750,000	52,750	5		12,000	Aug.. 1899	.24
139	Lake Superior Iron.	Mich.	2,100,000	84,000	25		2,132,000	Feb.. 1899	1.00
140	Last Chance, s. l.	B.Col	500,000	500,000	1		45,000	Apr.. 1899	.05
141	Last Dollar, g.	Colo..	1,500,000	1,500,000	1	60,000	90,000	July.. 1900	.02
142	Le Roi, g.	B.Col	5,000,000	200,000	5		1,305,000	Nov.. 1899	1.20
143	Lexington, g.	Colo..	1,500,000	1,500,000	1				
144	Lillie, g.	Colo..	1,250,000	250,000	5	45,117	349,300	April. 1900	.05
145	Little Tiger, g.	Cal..	500,000	500,000	1	15,000	47,500	Feb.. 1900	.01½
146	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	120,000	1,730,000	July.. 1900	.05
147	Marion Con., g.	Colo..	5,000,000	500,000	10		300,000	May.. 1899	.01
148	Mary McKinney, g.	Colo..	1,000,000	1,000,000	1	90,000	120,000	April. 1900	.06
149	Maryland Coal, pf.	Md...	1,885,005	18,850	100	37,700	584,319	June. 1900	2.00
150	Matoa, g.	Colo..	1,000,000	1,000,000	1		25,000	Dec.. 1898	.02½
151	Missouri Zinc Fields, pf.	Mo...	400,000	16,000	25	16,573	31,885	April. 1900	.16
152	Modoc, g. s.	Colo..	500,000	500,000	1	30,000	175,000	June. 1900	.01
153	Mollie Gibson, s. l.	Colo..	5,000,000	1,000,000	5		4,080,000	Jan.. 1895	.05
154	Monarch, g.	Colo..	1,000,000	1,000,000	1	120,000	120,000	April. 1900	.12
155	Montana Coal & Coke.	Mont.	5,000,000	200,000	25	60,000	60,000	April. 1900	.30
156	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5		453,700	April. 1899	.12
157	Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	160,000	1,520,000	May.. 1900	1.00
158	Montreal, g.	Colo..	1,000,000	1,000,000	1		7,500	Nov.. 1898	.00¾
159	Monument, g.	Colo..	300,000	300,000	1		18,124	Nov.. 1899	.01
160	Moon-Anchor Con., g.	Colo..	1,750,000	600,000	1		261,000	Nov.. 1898	.07½
161	Moose, g.	Colo..	600,000	600,000	1		186,000	Feb.. 1896	.01
162	Morning Star Drift, g.	Cal..	240,000	2,400	100		847,200	Nov.. 1899	10.00
163	Morse, g.	Colo..	1,250,000	1,250,000	1		215,650	May.. 1899	.12
164	Mountain Beauty, g.	Colo..	2,000,000	2,000,000	1				
165	Mountain Copper.	Cal ..	6,250,000	250,000	25	660,000	1,833,750	April. 1900	2.64
166	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1		75,000	Dec.. 1899	.04
167	Mt. Shasta, g.	Cal..	100,000	20,000	5		6,000	May.. 1899	.30
168	Moulton, g.	Mont.	2,000,000	400,000	5		500,000	Oct.. 1899	.05
169	Napa Con., q.	Cal ..	700,000	100,000	7	50,000	1,090,000	July.. 1900	.10
170	National Lead, com.	U. S..	15,000,000	149,054	100	149,054	1,341,486	Mar.. 1900	1.00
171	National Lead, pf.	U. S .	15,000,000	149,040	100	521,640	10,057,640	June. 1900	1.75
172	New Central Coal.	Md...	1,000,000	50,000	20	20,000	490,000	April. 1900	.40
173	New Idria, q.	Cal..	500,000	100,000	5	60,000	230,000	July.. 1900	.20
174	N. J. & Mo., z.	Mo...	250,000	2,500	100	6,000	6,000	May.. 1900	2.00
175	New York, Zinc.	Mo...	700,000	28,000	25		6,500	Oct... 1899	.25
176	N.Y.& Hon Rosario, s.g.	C. A..	1,500,000	150,000	10	90,000	1,252,000	June. 1900	.10
177	North Star Mines.	Cal ..	5,000,000	250,000	10		50,000	Nov.. 1899	.20
178	Nugget, g.	Colo..	625,000	1,250,000	½		35,000	Aug .. 1898	.00½
179	Okanogan, g.	Wash	62,500	1,250,000	5		3,125	Oct... 1899	.00¼
180	Old Colony Zinc & Sm.	Mo...	1,100,000	68,329	10	33,332	33,332	April. 1900	.25
181	Omega, g.	Colo..	1,500,000	1,212,550	1	18,188	18,188	June. 1900	.01½
182	Ontario, s. l.	Utah.	15,000,000	150,000	100	90,000	13,662,500	April. 1900	.30
183	Orphan Belle, g.	Colo..	1,000,000	1,000,000	1		197,899	Dec.. 1899	.09
184	Original Empire, g.	Cal..	5,000,000	50,000	100		530,000	Oct... 1899	1.00
185	Osceola, c.	Mich.	2,500,000	93,000	25	279,000	3,359,500	June. 1900	3.00
186	Parrot, c.	Mont.	2,300,000	229,850	10	1,034,325	4,049,059	July.. 1900	1.50
187	Pennsylvania Coal.	Pa....	5,000,000	190,000	50		4,050,000	May.. 1899	8.00
188	Pennsylvania Con, g.	Cal..	5,150,000	51,500	100	25,750	161,325	May.. 1900	.10
189	Pennsylvania Steel, pf.	Pa..	1,500,000	15,000	100	52,500	78,750	July.. 1900	1.75
190	Petro, g.	Utah.	1,000,000	200,000	5		32,000	Oct... 1899	.02½
191	Pharmacist Con., g.	Colo..	1,500,000	1,500,000	1		84,000	Jan.. 1898	.01
192	Pinnacle, g.	Colo..	2,000,000	2,000,000	1				
193	Pioneer, g.	Cal..	1,000,000	100,000	10		62,500	Mar.. 1899	.12½
194	Pittsburg Coal, pf.	Pa..	32,000,000	308,000	100	1,078,000	1,078,000	April. 1900	1.75
195	Plumas Eureka, g.	Cal ..	1,406,250	140,625	10	84,375	2,797,544	April. 1900	.60
196	Portland, g.	Colo..	3,000,000	3,000,000	1	390,000	2,947,080	June. 1900	.02
197	Princess, g.	Colo..	1,000,000	1,000,000	1		45,000	May .. 1896	.01
198	Prince Albert, g.	Colo..	3,000,000	3,000,000	1				
199	Queen Bess Propr., s. l.	B.Col	500,000	100,000	5		25,000	July.. 1899	.12½
200	Quicksilver, pref.	Cal..	4,300,000	43,000	100	21,500	1,866,911	July.. 1900	.50
201	Quincy, c.	Mich.	2,500,000	100,000	25	500,000	11,570,000	Feb.. 1900	5.00
202	Rambler & Cariboo, s. l.	B.Col	1,250,000	1,250,000	1	33,750	105,000	Mar.. 1900	.01
203	Reco, s. l.	B.Col	1,000,000	1,000,000	1		297,500	Jan.. 1898	.10
204	Republic Con., g.	Wash	3,500,000	3,500,000	1	105,000	382,500	Mar.. 1900	.01
205	Republic Iron & Steel, pf	U. S..	25,000,000	212,570	100	743,994	1,587,989	July.. 1900	1.75
206	Reward, g.	Cal ..	1,000,000	100,000	10		20,000	Aug .. 1899	.20
207	Russell-Irwin, z.	Mo...	250,000	25,000	10		15,000	Oct... 1899	.10
208	Sacramento, g.	Utah.	5,000,000	1,000,000	5		138,000	Oct... 1899	.00¼
209	St. Joseph, l.	Mo...	3,000,000	300,000	10	75,000	2,972,000	June. 1900	.50
210	Seventy-Six, g. s.	Colo..	1,000,000	200,000	5		2,950	Mar.. 1898	.01
211	Santa Rosalia, g.s.	Cal..	100,000	100,000	1		135,000	Sept.. 1899	.05
212	Silver King, g. s. l.	Utah.	300,000	150,000	20	450,000	2,900,000	June. 1900	.50
213	Small Hopes, s.	Colo..	5,000,000	250,000	20		3,325,000	Feb.. 1899	.10
214	Smuggler, s. l. z.	Colo..	1,000,000	1,000,000	1	330,000	1,515,000	June. 1900	.03
215	South Eureka, g.	Cal ..	1,500,000	300,000	5		12,000	May.. 1898	.04
216	South Swansea, s. l.	Utah.	150,000	150,000	1		165,000	Oct... 1899	.05
217	Specimen, g.	Colo,.	1,200,000	1,200,000	1				
218	Squaw Mountain, g.	Colo..	2,000,000	2,000,000	1		10,000	Nov.. 1899	.00½
219	Standard Con., g. s.	Cal..	2,000,000	200,000	10	40,000	3,939,226	May.. 1900	.10
220	Standard, g.	Idaho	500,000	500,000	1		1,745,000	April. 1899	.06
221	Stratton's Independ'ce.	Colo..	5,500,000	1,000,000	5	960,000	1,920,000	June. 1900	.48
222	Strong, g.	Colo..	2,500,000	2,500,000	1	150,000	1,000,000	June. 1900	.01
223	Swansea, s. l.	Utah.	500,000	100,000	5	40,000	241,500	June. 1900	.05
224	Tamarack, c.	Mich.	1,500,000	60,000	25	300,000	6,570,000	June. 1900	7.00
225	Tomboy, g.	Colo..	1,500,000	300,000	5	72,000	884,000	June. 1900	.24
226	Touraine, g.	Colo..	1,250,000	1,250,000	1	87,500	87,500	April. 1900	.07
227	Union, g.	Colo..	1,250,000	1,250,000	1		82,744	June. 1896	.01
228	Union Leasing.	Colo..	1,000,000	1,000,000	1		336,000	July.. 1895	.04
229	Union, z. l.	Kas..	500,000	500,000	1	5,000	5,000	June.. 1900	.01
230	United, z. l., pref.	Mo...	6,000,000	240,000	25	12,729	15,395	April. 1900	.50
231	United Verde, c.	Ariz..	3,000,000	300,000	10	975,000	1,837,500	June. 1900	.75
232	Utah, g.	Utah.	1,000,000	100,000	10		179,000	Jan.. 1899	02
233	Victor, g.	Colo..	1,000,000	200,000	5		1,155,000	Dec.. 1898	.50
234	Vindicator, Con., g.	Colo..	1,500,000	1,065,000	1	106,500	411,000	April. 1900	.05
235	War Eagle Con., g. s. c.	B.C..	2,000,000	1,750,000	1	52,500	545,250	Feb.. 1900	.01½
236	What Cheer, z.	Mo...	225,000	22,500	10	9,000	11,250	May.. 1900	.20
237	Wolverine, c.	Mich.	1,500,000	60,000	25	120,000	390,000	April. 1900	2.00
238	Work, g.	Colo..	1,500,000	1,500,000	1				
239	Yellow Aster, g.	Cal..	1,000,000	100,000	10	100,000	419,416	July.. 1900	.20
240	Ymir, g.	B.Col	1,000,000	125,000	5		30,000	Nov.. 1899	.24
141	Zenobia, g.	Colo..	1,000,000	1,000,000	1		10,000	Feb.. 1898	.01

G., Gold. S., Silver. L., Lead. C., Copper. Z., Zinc. Q., Quicksilver. I., Iron. This table is corrected up to July 2d. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

	Cust.	Meas.	Price.
Abrasives—			
Carborundum, f.o.b. Niagara Falls, Powd., F. FF. FFF	lb.		$0.10
Minute No. 1	"		.15
No. 15	"		1.00
Corundum, N. C.	"		.07@.10
Chester, Mass.	"		.04½@.05
Crushed Steel, f. o. b. Pittsburg	"		.05½
Emery, Turkish flour, in kegs	"		.03
Grains, in kegs	"		.04½@.05
Naxos flour, in kegs	"		.03
Grains, in kegs	"		.05
Chester flour, in kegs.	"		.03
Grains, in kegs	"		.04½@.05
Peekskill flour, in kegs	"		.01¾
Grains, in kegs	"		.02½
Crude, ex-ship, N. Y.:			
Kuluk (Turkey)	lg. ton		22.00@24.00
Abbott (Turkey)	"		26.50@30.00
Naxos (Greek) h. gr.	"		32.00
Pumice Stone, Am. powd.	lb.		.01½@.02
Italian, powdered	"		.01½
Lump, per quality	"		.04@.40
Rottenstone, ground	"		.02¼@.03
Lump, per quality	"		.05@.14
Rouge, per quality	"		.10@.30
Steel Emery, f.o.b. Pittsburg	"		.07
Acids—Acetic, 30% pure	100 lbs.		3.50
30% ch. pure	"		6.00
80% pure	"		7.50
Benzoic, English	oz.		.12½
German	lb.		.46
Boracic, cryst.	"		.11
Powdered	"		.11½
Carbolic, crude, 60%	gal.		.35
Cryst, 37% drums	lb.		.20
Liquid, 95%	gal.		.45
Carbonic, liquid gas	lb.		.12½
Chromic, crude	"		.20
Chem. pure	"		.50
Hydrochloric, ch. pure.	"		.07
Hydrofluoric, 36%	"		.03
48%	"		.05
Best	"		.25
Nitric, chem. pure	"		.09
Sulphuric, chem. pure	"		.07
Sulphurous, liquid anhy.	"		.08
Tartaric, cryst.	"		.32
Powder	"		.32½
Alcohol—Grain	gal.		2.37
Refined wood, 95@97%	"		.75@.80
Purified	"		1.20
Alum—Lump	100 lbs.		1.75
Ground	"		1.85
Powdered	"		3.00
Chrome, com'l	"		2.75@3.00
Aluminum—Nitrate	lb.		1.50
Oxide, com'l, common	"		.06½
Best	"		.20
Pure	"		.80
Hydrated	100 lbs.		2.60
Sulphate, pure	"		1.50@1.75
Com'l	"		1.15@1.30
Ammonia—Aqua, 16°	lb.		.03
18°	"		.03¼
20°	"		.03¾
26°	"		.05½
Ammonium—			
Bromide, pure	"		.52@.53
Carbonate lump	"		.08¼@.08½
Powdered	"		.09¼@.09½
Muriate, gran.	"		.06¼
Lump	"		.09¼
Nitrate, white, pure (99%)	"		.10½
Phosphate, com'l	"		.12
Chem. pure	"		.60
Antimony—Glass	"		.30@.40
Needle, lump	"		05½@.06
Powdered, ordinary	"		.05¾
Best	"		.08½
Oxide, com'l white, 95%	"		.09½
Com'l white, 99%	"		.12
Com'l gray	"		.07
Sulphuret, com'l	"		.16
Arsenic—White	"		.04½
Red	"		.07¼@.07¾
Asphaltum—			
Ventura, Cal.	sh ton		32.00
Cuban	lb.		.01½@.03½
Egyptian, crude	"		.05½@.06
Trinidad, refined	lg. ton		30.00@35.00
San Valentino	"		15.00
Seyssel (French) mastic.	sh. ton		21.00
Gilsonite, Utah, ordinary	lb.		.03
Select	"		.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton		25.00@27.50
92@98%	"		26.00@29.00
Powdered, 80@90%	lb.		.01¾@02
Chloride, com'l	"		.02@.02¼
Chem. pure cryst	"		.05
Nitrate, powdered	"		.06
Oxide, com'l, hyd. cryst	"		.18
Hydrated, pure cryst.	"		.25
Pure, powd.	"		.27
Sulphate	"		.01
Barytes—Am. Cr., No. 1.	sh. ton		9.00
Crude, No. 2	"		8.00
Crude, No. 3	"		7.75
Am. Floated	"		14.50@17.50
German, gray	"		14.50
Snow white	"		17.50
Bauxite—Ga. mines: 1st grade	lg. ton.		5.00@5.10
Second grade	"		4.25@4.50
Ala., f.o.b., 1st grade	"		5.00
Second grade	"		3.85
Bismuth—Oxide, hydr.	lb		2.25@2.30
Subnitrate	"		1.30@1.35
Bitumen, "B"	"		.03½
"A"	"		.05
"A" and "B"	"		.04½
Bone Ash	"		03¾@.03½

	Cust.	Meas.	Price.
Borax	lb.		$.07¼@.07½
Bromine—Bulk	"		.45
Cadmium—Metallic	"		1.40
Acetate, pure white	100 lbs.		1.00
Sulphate	"		2.00@2.50
Calcium—Acetate, gray.	"		1.55
brown	"		1.05
Carbide, ton lots, f. o. b. Niagara Falls, N. Y.	sh. ton		75.00
Carbonate, ppt.	lb.		.05
Chloride, com'l	100 lbs.		.90
Best	"		1.00
Sulphite	lb.		.05
Cement—			
Portland, Am.	400 lbs.	bbl.	1.50@2.00
Belgium	"		1.95@2.20
English	"		2.45@2.55
German	"		2.30@2.70
"Rosendale," 300 lbs.	"		.95
Sand cement, 400 lbs.	"		1.55@1.95
Slag cement, imported.	"		1.65
Ceresine—			
Orange and Yellow	lb.		.11½
White	"		.13½
Chalk—Lump, bulk	sh. ton		2.15
Ppt. per quality	lb.		.04¼@.06½
Chlorine—Liquid	"		.28
Water	"		.15
Chrome Ore—			
(50% chrome) ex-ship	lg. ton		23.00
Sand	"		35.00
Bricks, f.o.b., Pittsburg. M			175.00
Clay, China—Am. com., ex-dock, N. Y.	lg ton		8.00
Am. best, ex-dock, N. Y.	"		9.00
English, common	"		12 00
Best grade	"		17 00
Fire Clay, ord.	sh. ton		4.00
Best	"		5.75
Slip Clay	"		4.00
Coal Tar Pitch	gal.		.08
Cobalt—Carbonate	lb.		1.75
Nitrate	"		1.50
Oxide—Black	"		2.26@2.36
Gray	"		2.28@2.40
Smalt, blue ordinary	"		.25
Best	"		.30
Copperas	100 lbs.		72½
Copper—Carbonate	lb.		.18
Chloride	"		.25
Nitrate, crystals	"		.35
Oxide, com'l	"		.19
Cream of Tartar—Crys.	"		.22½
Granulated	"		.22½
Powdered	"		.23½
Cryolite	"		.06½
Explosives—			
Blasting powder, A. 25 lb. keg			2.50
Blasting powder, B.	"		1.25
"Rackarock," A	lb.		.25
"Rackarock," B	"		.18
Judson R.R. powder	"		.10
Dynamite (20% nitro-glycerine)	"		.13
(30% nitro-glycerine)	"		.14
(40% nitro-glycerine)	"		.15
(50% nitro-glycerine)	"		.16½
(60% nitro-glycerine)	"		.18
(75% nitro-glycerine)	"		.21
Glycerine for nitro (32 2-10° Be.)	"		.13¼
Feldspar—Ground	sh. ton		8.00@9.00
Fluorspar—In bulk.			
Am. lump, 1st grade	"		12.40
2d grade	"		11.90
Gravel & crushed, 1st g	"		11.40
2d grade	"		10.90
Ground, 1st grade	"		15.90
Foreign, lump	"		8.00@12.00
Ground	"		11.50@14.00
Fuller's Earth—Lump	100 lbs.		.75
Powdered	"		.85
Refined lump	"		1.25
Graphite—			
Am. lump, f. o. b. Providence, R. I.	sh. ton		8.00
Am. pulv., f. o. b. Providence, R. I.	"		30.00
German, lump	lb.		.01½
Pulverized	"		.01¾@.02
Ceylon, common	"		.04
Pulverized	"		.05@.08
Italian, pulv	"		.01½
Gypsum—Ground	sh. ton		8.00@8.50
Fertilizer	"		7.00
Rock	lg. ton		4.00
English and French	"		14.00@16 00
Infusorial Earth—Ground.			
American, best	"		20.00
French	"		37.50
German	"		40.00
Iodine—Crude	100 lbs.		2.45
Iron—Muriate	lb.		.05
Nitrate, com'l	"		.01½
True	"		.03½
Oxide, pure copperas col	"		.05@.10
Purple-brown	"		.02
Venetian red	"		.01@.01½
Scale	"		.01@.03
Kaolin—(See Clay, China).			
Kryolith—(See Cryolite.)			
Lead—Acetate, white	lb.		.07
Com'l, broken	"		.06½
Brown	"		.05½
Nitrate, com'l	"		.06½
" gran.	"		.8¼
Lime—Com., ab. 250 lbs	bbl.		.60
Finishing	"		.70
Magnesite—			
Crude, lump (95%) Greece	lg. ton		7.00@7.50
Calcined (Greece)	sh. ton		17.50
Bricks (Greece)	M.		170.00
Bricks, Am., f.o.b. Pittsburg	M.		175.00
Magnesium—			
Carbonate, light, fine pd	lb.		.03¾

	Cust.	Meas.	Price.
Magnesium—Carb.			
Blocks	lb.		$0.06@.09
Chloride, com'l	"		.01¾
Fused	"		.20
Nitrate	"		.60
Sulphate	"		.01@.01¼
Manganese—Crude-pow'd 70@75% binoxide	"		.01¼@.01½
Crude, pow'd 75@85% binoxide	"		.01½@.02½
85@90% binoxide	"		.02½@.03¼
90@95% binoxide	"		.02¾@.05½
Carbonate	"		.16@.20
Chloride	"		.04
Ore, 50%, Foreign	unit		.29
Domestic	"		.30
Marble—Flour	sh. ton		5.50@6.00
Mercury—Bichloride	lb.		.74
Mica—N. Y. gr'nd. coarse	"		.04@.05
Fine	"		.05@.06
Sheets, N. C., 2x4 in	"		.30
3x3 in	"		.80
3x4 in	"		1.50
4x4 in	"		2.00
6x6 in	"		3.00
Scrap, f.o.b., Dillsboro, N. C.	sh. ton.		25.00
Mineral Wool—			
Slag, ordinary	sh. ton		20.00
Selected	"		25.00
Rock, ordinary	"		32.00
Selected	"		40.00
Monazite—92%	"		140.00
Nickel—Oxide, No. 1	lb.		1.00
No. 2	"		.60
Sulphate	"		.20@.21
Oils—Black, reduced 29 gr.			
25@30 cold test	gal.		.09¾@.10¼
15, cold test	"		.10¾@.11¼
Zero	"		.11¾@.12¾
Summer	"		.09¼@.09¾
Cylinder, dark steam ref	"		.08¾@.10¼
Dark filtered	"		.11¾@.16¼
Light filtered	"		.14¾@.17¾
Extra cold test	"		.21¾@.26¾
Gasolene, 86°@90°	"		.16@.21
Naphtha, crude 68@72°	"		9.55
"Stove"	"		.12
Linseed, domestic raw	"		.65@.67
Boiled	"		.69
Calcutta, raw	"		.76
Graphite, lubricating, Am. dry	lb		.10
In oil	"		.12
Axle grease	"		.08½@.10
Wood grease	"		.05@.06
Ozokerite—Foreign	"		.09¼
Paints and Colors—			
Benzine, Sumatra	"		.35
Marbled	"		.27
Chrome green, common	"		.05
Extra	"		.12@.15
Best	"		.37
Yellow, common	"		.10
Best	"		.25
Silica Graphite, thick	"		.12
Thinned	gal.		1.15
Lampblack, com'l	lb.		.03
Refined	"		.08
Calcined	"		.12@.20
Fine spirit	"		20@.35
Litharge, Am. powd.	"		.06½
English flake	"		.09½
Glassmakers, Foreign	"		.06½
Metallic, brown	sh. ton		19.00
Red	"		16.00
Ocher, Am. common	"		9.25@10.00
Best	"		21.25@25.00
Dutch, washed	lb.		.04¾
French, washed	"		.01¼@.02½
Orange mineral, Am.	"		.08¾@.08½
Foreign, as to make	"		.09½@.11¼
Paris green, pure, bulk	"		.12
Red lead, American	"		.06½
Foreign	"		.08¾
Shellac, "D. C."	"		.28
Native	"		.15
Turpentine, spirits	gal.		.46@.46½
Ultramarine, best	lb.		.25
Vermilion, Amer. lead	"		.10@.11
Quicksilver, bulk	"		.72
Chinese	"		.85
English, imported	"		.80
English, domestic	"		.74
White lead, Am., dry	"		.05¾
In oil	"		.06½
English	"		.06½@.08¾
Whiting, common	100 lbs.		.40
Gilders	"		.54
Zinc white, Am., ex. dry	lb.		.04¾@.05¼
American, red seal	"		.07¾@.07¾
Green seal	"		.07¾@.08
Foreign, red seal, dry	"		.06¼@.08¼
Green seal, dry	"		.06¾@.08⅝
Foreign, in oil	"		.10¼@.11¾
Potash—Caustic, ord.	"		.04½@.05
Elect. (90%)	"		.06½
Potassium—			
Bicarbonate cryst.	"		.07¾
Powdered or gran.	"		.12
Bichromate, Am.	"		.08½
Scotch	"		.09½
Carbonate, hydrated	"		.04¼
Calcined	"		.04
Chromate	"		.35
Cyanide (98@99%)	"		.28@.29
Iodide, bulk	"		2.30
Permanganate, pure cr.	"		.14
Prussiate, yellow	"		.18½@.19
Red	"		.37
Silicate	"		.06
Sulphide, com'l	"		.10
Quartz—(See Silica).			
Rosin—			
Com. strained (280 lbs.)	bbl.		1.55
Best strained	"		3.00
Medium	"		1.75

	Cust.	Meas.	Price.
Salt—			
N.Y. com. fine	sh. ton		$2.00
N. Y. agricultural	"		1.50
Saltpeter—Crude	100 lbs.		3.50
Refined	"		4.25
Silica—Best foreign	lg. ton		10 00@11.00
Ground quartz, ord.	sh. ton		6.00@8.00
Best	"		12.00@13.00
Lump quartz	"		2.50@4.00
Glass sand	"		2.75
Silver—Chloride	oz.		.65
Nitrate	"		.40
Oxide	"		.85@1.10
Slate—Ground, black	sh. ton		7.50@8.75
Ground, red and olive.	"		20.00
Sodium—Acetate, com'l.	lb.		.04¼
Bichromate	"		.06½
Chlorate, com'l	"		.09¼@.09½
Hyposulphite, Am.	100 lbs.		1.70@1.80
German	"		2.10@2.20
Nitrite, 96@98%	lb.		.08
Peroxide	"		.45
Phosphate	"		.02½
Prussiate	"		.14¼
Silicate, conc.	"		.05
com'l	"		.02¼
Sulphate, gran., puri'd.	"		.03
Sulphide	"		.01¾
Sulphite	"		.02½
Tungstate, com'l	"		.35
Pure	"		.50
Strontium—Nitrate	"		.09
Sulphur—Roll	100 lbs.		1.75
Flour	"		1.85
Flowers, sublimed	"		2.05
Talc—N. C., 1st grade	sh. ton		13.75
N. Y., Fibrous	"		8.00@9.00
French, best	100 lbs.		1.35
Italian, best	"		1.75
Tin—Bichloride	lb.		.09½@.10
Crystals	"		.20
Muriate, 36°	"		.09
52°	"		.15
Oxide, white, ch. pure	"		.41
Uranium—Oxide	"		2.25@3.00
Zinc—Metallic, ch. pure	"		07¼@.09½
Carbonate	"		.15
Chloride	"		.05
Dust	"		.07¼
Sulphate	"		.02@.02⅞

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust.	Meas.	Price.
Barium—Amalgam	grm.		$1.19
Electrol	"		5 71
Beryllium—Powder	"		5.95
Crystals	"		9.04
Nitrate (N Y.)	oz.		2.00
Boron—Amorphous, pure	grm.		.19
Crystals, pure	"		1.43
Nitrate (N. Y.)	lb.		1.50
Cadmium	kg.		1.90
Calcium	grm.		4.28@5.95
Cerium—Fused	grm.		1.02
Nitrate (N. Y.)	lb.		17.00
Chromium—Fused, Elect.	kg.		5.95
Pure powder 95%	"		1.79
Chem. pure cryst	grm.		.26
Cobalt—(98@99%)	kg.		6.81@7.85
Pure	"		30.94
Didymium—Nitrate (N.Y.)	oz.		3.00
Erbium	grm.		3.09
Nitrate (N. Y.)	oz.		3.00
Germanium—Powder	grm.		33.32
Fused	"		35.70
Glucinum—Powder	"		5.95
Crystals	"		9.04
Nitrate (N. Y.)	oz.		2.75
Indium	grm		4.05
Iridium	"		1.43
Lanthanum—Powder	"		4.28
Electrol, in globules	"		9.04
Nitrate (N Y.)	oz.		2.75
Lithium	grm.		2.38
Nitrate (N. Y.)	oz.		.60
Magnesium—In bars	kg.		6.19
In wire	"		9.99
Powdered	"		5.71@6.90
Molybdenum—Fused	grm.		.20
Powder, 95%	kg.		2.62
Niobium	grm.		3.81
Osmium	"		.95
Palladium—Wire	"		.95
Sponge	"		.71
Potassium—In balls	kg.		17.85
Rhodium	grm.		2.62
Rubidium—Pure	"		4.76
Ruthenium—Powder	"		2.38
Rutile—Crude	kg.		.43
Selenium—Com'l powder	"		33.32
Sublimed powder	"		42.84
Sticks	"		35.70
Silicium—Com'l	"		28.56
Pure crystals	"		59.50
Sodium (N. Y.)	lb.		.65
Strontium—Electrol	grm.		6.19
Tantalium—Pure	"		3.57
Tellurium—Ch. p. sticks.	kg.		119.00
Powder	"		95.20
Thallium	"		26.18
Thorium—Metallic	grm.		7.85
Nitrate 49@50% (N. Y.)	lb.		5.00
Titanium	kg		47.60
Uranium	"		190.40
Nitrate (N. Y.)	oz.		.25
Vanadium—Fused	grm.		1.19
Wolfram—Fused, elect.	kg.		238.00
Powder, 95@98%	"		1.67
Purest, powder	"		6.43
Yttrium	grm.		3.33
Nitrate (N. Y.)	oz.		3.00
Zirconium—Com'l	kg.		119.00
Nitrate (N. Y.)	lb.		9.00

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to June 9. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.